

**Lecturer-Student Interaction in
English-Medium Science Lectures:
An Investigation of Perceptions and
Practice at a Sri Lankan University where
English is a Second Language**

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Abstract

This study arises from two contextualised problems faced by the students at the Faculty of Applied Sciences (FAS) of a small university in Sri Lanka. These problems are: students' lecture comprehension difficulties and limited oral language proficiency in their second language (i.e. English). The ideas developed in this study are based on the argument that dialogic lecturer-student interaction, which enables students to take a more active role in discussions compared to the use of recitation scripts (questions-answers-evaluations) developed in non-dialogic interactions, is likely to be beneficial for students' content and language development. Although there have been studies at primary level, there has so far been little research into dialogic interaction in tertiary-level L1 Science classes, and none yet carried out in the L2 context. Therefore, this study investigates the extent of dialogic interaction practised at FAS, in conjunction with a thorough consideration of the factors that influence interaction between lecturers and students.

This study, involving 30 students and 4 lecturers, was undertaken as a pioneer study in this context in Asia by analysing L2 lectures given at FAS. Data were collected from lecturer and student questionnaires, lecturer interviews, student group interviews, observations of 24 lectures and audio recordings. Of the observed lectures, a total of 12 from Biotechnology, Animal Physiology, Physics and Statistics were transcribed verbatim and analysed using an analytical framework, which was especially designed to analyse the FAS lecture discourse. This framework was also used to locate these lectures on a scale from monologic to dialogic.

The study revealed the complexity of the perception-practice dynamic, and the multi-faceted sub-set of factors which influenced students' and lecturers' behaviour in class, and their perception of that behaviour. Students' lecture comprehension problems and classroom interaction were influenced by their language proficiency, though the students considered the lecturers' lecture delivery style to be more important than their own language proficiency. In this study it was revealed that a culturally embedded behaviour perpetuated by senior students, known as ragging (a kind of bullying), restricted the classroom interaction of the students.

In terms of lecture delivery style, of all the observed lectures only two contained some interactional episodes in addition to monologic segments, while the others were found to be highly or mostly monologic. Students were also found not to be cooperating with lecturers in classroom interaction, despite stating a preference for learning through interaction. The students asked only very few questions in all the observed lectures, and answered in a limited number of lectures. The lecturers asked more knowledge testing questions than any other kind, while there were only a few concept development questions – the type which can help develop dialogic interaction.

Overall, this investigation, which demonstrates the importance of combining studies of perception with detailed analysis of the discourse itself, indicates limited lecturer-student interaction as well as a clear lack of dialogic interaction in English-medium Science lectures at this particular university. In addition, it is argued that the innovative analytical framework designed to analyse the lectures delivered in the English Medium Instruction (EMI) context of the present study can be useful for other lectures which are commonly delivered as monologic in both L1 and L2 contexts. Finally, it also stresses the importance of investigating the influence of cultural and behavioural factors, such as ragging, on classroom learning.

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Abbreviations

ABOE	–	Activity Based Oral English
AP	–	Animal Physiology (subject)
AS	–	Applied Statistics (subject)
BL1	–	Biology Lecturer 1
BL2	–	Biology Lecturer 2
BT	–	Biotechnology (subject)
CDE	–	Concept Development Episode
CDQ	–	Concept Development Questions
CME	–	Classroom Management Episode
CMQ	–	Classroom Management Question
FAS	–	Faculty of Applied Sciences
GCE A/L	–	General Certificate in Education Advanced Level
GCE O/L	–	General Certificate in Education Ordinary Level
IRQUE	–	Improving Relevance and Quality of Undergraduate Education
KAE	–	Knowledge Application Episode
KAQ	–	Knowledge Application Question
KTE	–	Knowledge Testing Episode
KTQ	–	Knowledge Testing Question
ML1	–	Mathematics Lecturer 1
ML2	–	Mathematics Lecturer 2
PH	–	Physics (subject)

CHAPTER 1 – INTRODUCTION

1.1 Introduction to the study and to the chapter

Introducing the study

I undertook this study in the context of English medium science lectures at a small faculty in a Sri Lankan university where English is spoken as a second language (ESL). This study focuses on investigating lecturer-student interaction as a remedial measure to overcome the problems faced by students in ESL science lectures, in particular the students' lecture comprehension difficulties and limited oral language proficiency in their second language (i.e. English). In this study, I argue that dialogic lecturer-student interaction is likely to be beneficial to both students' content and language development. I will discuss dialogic interaction and dialogic teaching in detail in chapter 3, but at this point it can be defined simply as a mutual dialogue that takes place between a lecturer and students. In other words, an interaction in which both the lecturer and the students mutually contribute to the discourse with a view to exploring or developing a concept in a lesson. Later in this chapter I will locate dialogic teaching and learning in relation to Second Language Acquisition (SLA) studies, particularly in respect of sociocultural theory (e.g Vygotsky, 1978).

Dialogic interaction can be differentiated from non-dialogic interaction in the sense that dialogic interaction carries the notion of mutual contributions from both the students and the teacher, while 'non-dialogic' (Pedrosa de Jesus and da Silva Lopes, 2009) lacks that mutuality. In this thesis, the term interaction, unless specified as dialogic, refers to simple question and answer sequences such as this one. I explain these categories in detail in chapter 5.

E.g. Teacher: What is PCR?
 Student: Polymerase chain reaction
 Teacher: Yes, correct.

This study is not experimental in nature, and does not aim to find a direct relationship between variables, for example between interaction and content learning. Rather it collects evidence to investigate the feasibility of practising dialogic interaction in ESL science lectures at the Faculty of Applied Sciences (hereinafter referred to as FAS) of a Sri Lankan university as a pioneer study in the South Asian region. For this purpose, this study examines the extent of dialogic interaction practised and the factors that influence interaction in ESL science lectures at FAS, by analysing data relating to both (i) student and lecturer perceptions about ESL science lectures and (ii) the actual practice and discourse of a sample of such lectures. This analysis helps to explore the nature of the existing situation and make recommendations for future changes, having given due consideration to political, institutional and personal factors.

Introducing the chapter

In this chapter, I explain the origin, context and rationale for the study, the research questions employed, and the structure of the thesis. More importantly, I discuss the theoretical basis for the study, locating this study within a sociocultural understanding of pedagogy and dialogic approaches to learning.

1.2 Origin of the study

This study emerges from over a decade's experience of working as a language instructor at the Faculty of Applied Sciences of a Sri Lankan university. As a result of my observation of, and engagement with, the problems of students studying in English medium classes, two types of problems seem to emerge as more severe than the others: i) restricted lecture comprehension and ii) poor oral skills. I wish to find ways to address these problems, since it would appear that language classes have not

successfully supported studying through the medium of another language (English), particularly with reference to improving these two areas.

Students in English medium classes at FAS (as at other universities in Sri Lanka) have consistently found difficulties in comprehending lectures delivered in English, and also participating in classroom discussions. One reason for their problems is that their secondary education is offered in the mother tongue, either Tamil or Sinhala. When these students enter university they face a sudden switch in the medium of instruction, from the mother tongue to English, for which they are not well prepared. This transition is difficult despite the efforts are being made by the English Language Teaching Unit (ELTU) of the university to alleviate their problems.

The ELTU, to which I am attached, functions as an academic support unit to improve the language proficiency of the students. Its main task is to assist the students in improving the language skills required to follow their degrees successfully and also to enhance their general language proficiency so that when they graduate they can easily be absorbed into a competitive job market. Nevertheless, due to various shortcomings and practical difficulties, such as the shortage of teaching staff, lack of teaching resources and facilities, and poor administrative support, the courses offered by the ELTU concentrate on writing and reading skills only, rarely on speaking and listening skills. In my professional role, I suspected that the neglect of speaking and listening skills in these English courses could also contribute to students' lecture comprehensions difficulties and lack of classroom interaction. Therefore, my desire to try to find alternative ways to support students' lecture comprehension and oral language provided the genesis for this study.

1.3 Context of the study

This study is undertaken in an English Medium Instruction (EMI) context in tertiary level science undergraduate classes, with students whose entire school study has been conducted in L1 (Tamil), and who now have to study in the university through English.

In Sri Lanka English is used as a second language (ESL). The entire private sector uses English as the language of operation, most government departments and ministries function in English, and in parliament many MPs speak in English. In addition, the tertiary education sector uses English as a medium of instruction (alongside Tamil and Sinhala), and also it is used in meetings and for internal as well as external correspondence, etc. A few schools in the metropolitan areas also use English as a medium of instruction. However, the prominent role which the English language gained in Sri Lanka during the period of British colonisation faced significant upheaval soon after independence, as I explain in chapter 2.

English is used as a medium of instruction in the tertiary institutes in Sri Lanka to teach different subjects/courses to undergraduate and postgraduate students, while L1 instruction is also widely available for courses, especially in the Arts and Humanities, as mentioned above. All universities have a mandate to develop the language competency of the students by means of teaching them through English. Such ‘English Medium Instruction’ is a kind of late immersion education (Hoare, 2003). The term EMI has been used by Hoare (2003), and Sert (2008), while other researchers have used the terms ‘English medium education’ (Tunga et al., 1997) and ‘English as a medium of instruction’ (Abdel Rahman, 2001; Lin, 2003, Marsh, 2006). All these terms refer to the teaching of content subjects through the medium of

English. I prefer to use the term EMI, as it is a familiar term in Sri Lanka. For example, the ministry of education uses the term English medium instruction.

1.4 Locating this study

Classroom interaction is considered to be important for learning, so any attempt to improve teaching and learning should consider classroom interaction as a potential area for development (Walsh, 2011). This claim is based on the assertion that language is the medium of acquiring new knowledge and also, in language classes, language is used as both the medium as well as the goal of the study (ibid). Similarly, oral interaction that occurs between teacher and students and among students is deemed to be important in creating a suitable learning environment and for learners' development (Hall and Verplaetse, 2000). In addition, interaction in content classes may help students' academic L2 competency (Verplaetse, 2000) by giving them the opportunity to practise the language to reach fluency and hear the academic talk and later appropriate it. Hence, it is generally believed that through interaction, not only students' academic communication skills, but also their second language develops (ibid).

On this basis, the argument developed in the thesis is that dialogic interaction could enhance the students' content as well as language development in tertiary level ESL science lectures. In order to provide a solid basis for this argument, I locate this study within the direct principles of dialogic perspectives to teaching and learning, which are built on the premise of sociocultural perspectives toward learning situated within the broader Second Language Acquisition (SLA) studies, as I explain below.

Interaction has been investigated under the SLA umbrella in different contexts such as ESL (English as a Second Language), EFL (English as a Foreign Language) and

‘immersion’ – where students study all their school subjects through the medium of a second or foreign language for its benefit in developing language among Non-native Speaker (NNS) students, on the assumption that negotiated interaction between the learners and the teacher can enhance comprehension of the input and in turn lead to language development. However, as these SLA studies were carried out for many years under the influence of psycholinguistic oriented research, concern was raised for the need to conduct the studies with more focus on social and contextual factors. For example, Firth and Wagner (1997) argued for sociolinguistic perspectives. In response to this type of request, in recent years, studies based on the sociocultural perspective have emerged as dominant (e.g. Nassaji and Swain, 2000; Hall and Walsh, 2002; Lantolf, 2006) within SLA research, with increased awareness of social concerns (Block, 2003).

Recently, attention has been drawn to interaction in first language (L1) primary level content classes in the form of whole class interactive teaching (e.g. Mroz et al., 2000; English et al., 2002; Hardman et al., 2003; Smith et al., 2004; Myhill, 2006), and in L1 tertiary level content classes (e.g. van Dijk et al., 2001; Huxham, 2005; Ernst and Colthorpe, 2007) as well as second language (L2) lectures (e.g. Kumar, 2003). These studies focused on how content learning can be facilitated through interaction. However, the studies conducted at tertiary level in the area of interaction mostly consider only content learning, while the present study considers both content and language learning. In order for effective content and language learning to take place, it is suggested that interaction should be dialogic.

The importance of dialogic interaction in learning has been emphasised in sociocultural perspectives on learning in both L1 and L2 contexts. Sociocultural

theory, built on the work of Vygotsky (1978) argues that the role of language and interaction between the teacher and the learners is important for the L1 as well as L2 learners (Mercer, 2001). Following the path of Vygotsky's sociocultural theory, social constructivists (e.g. Mercer, 1995; Staarman and Mercer, 2010) argue that teacher-led discussions are important for learning in the classroom. In this kind of learning the teacher has an important role as he or she is the one who should exploit students' present understanding and 'make explicit their thoughts, reasons and knowledge' through appropriate use of questions (Rojas-Drummond and Mercer, 2003: 101). The argument is that this kind of talk should be dialogic with mutual contributions from both the students and the teacher to the discourse, which in turn can be a good platform for content and language learning (Swain and Lapkin, 1998).

A small number previous studies have investigated how dialogic interaction can assist the content and language development of ESL learners (Haneda, 2005; Haneda and Wells, 2010), though they focused on primary level content classes. This study also treats interaction as important in accordance with other studies, but it is built on the construct of sociocultural theory and treats the dialogic approaches to teaching and learning in classroom settings as more important than non-dialogic interaction at tertiary level.

Dialogism, which has its origins in the conceptual work of Bakhtin (1981), was further developed as a dialogic teaching approach by Alexander (2006), while the dialogic value of interactional episodes has been identified by the work of Mortimer and Scott (2003) in secondary level science classes. In this study, the occurrence of dialogic interaction in a small corpus of lecture discourse that was collected from the lectures delivered to ESL undergraduate science students has been investigated using an innovative analytical framework. The framework, which was designed exclusively

for this study, categorises the lectures from highly monologic to highly dialogic. This framework incorporates the dialogic concept of Mortimer and Scott as well as the MICASE (Michigan Corpus of Academic Spoken English) classification of discourse types, which was used to analyse a larger corpus of academic encounters (e.g. lectures, seminars, discussions, etc.) at the University of Michigan in Ann Arbor. Therefore, the present study is also carried out under the purview of sociocultural theory and dialogic approaches to learning and teaching, but as an exploratory one to investigate the presence of dialogic/interactive lectures within the FAS lecture discourse.

1.5 Rationale for the study

There are several reasons why I have undertaken this study. Firstly, I have a personal interest in the areas which it investigates. As I mentioned in the above section on the origin of the study, lecture comprehension difficulties and limited oral proficiency of students have long been the kinds of problems faced by the FAS students in the English medium undergraduate classes. Therefore, as a result of this study, I hope to be able to address these problems via lecturer-student interaction, while other measures (e.g. English teaching) attempted to bring changes to the existing situation have not been successful.

Secondly, the study fills a gap in the research into lecture comprehension. Only a few studies have tried to investigate lecture comprehension focussing on the NNS lecturer-NNS student context (e.g. Mason, 1994; Flowerdew et al., 2000; Hasan, 2000; Yousif, 2006); only one study has been conducted on students' lecture comprehension in Sri Lankan tertiary level content classes with a focus on comprehension problems (Sally, 1985).

Thirdly, the number of studies that have investigated lecturer-student interaction in tertiary-level classes from a dialogic point of view is extremely limited. There are only two known studies conducted at tertiary level by Pedrosa de Jesus and da Silva Lopes (2009; 2011) at the University of Aveiro, Portugal, of which only the more recent one is published. In 2009, they investigated the relationship between teachers' teaching approaches and students' questioning behaviour, while in 2011 they investigated the relationship between teaching approaches and teachers' questioning practice – but in an L1 rather than an L2 environment.

Fourthly, I envisage that this study can contribute to new knowledge and practice because it investigates into a hitherto under-researched context: tertiary level L2 science classes. As mentioned previously, this is the first study to investigate dialogic interaction in the context of tertiary level L2 science classes. Therefore, it is hoped that the findings of this study can lead to a breakthrough in our understanding of lecturer-student interaction (specifically dialogic interaction), particularly as interaction is currently seen as being at the heart of learning (Walsh, 2011). It can also be predicted that the findings of the study can be useful for both the lecturers who practise or would like to practise dialogic teaching in lecture classes as this study investigates the occurrence of dialogic interaction from a perception-practice dynamic and analyses the factors that influence lecturers' and students' perception and practice in the classroom. Therefore, this study, while making a contribution to a new dimension in the lecture comprehension domain, fills a gap in the research into lecturer-student interaction at tertiary level from a dialogic perspective, particularly in an L2 learning context.

Fifthly, this study can support the Sri Lankan government's educational policies. There is a need for science graduates to teach in the English medium at secondary level in order to take forward the policy initiative of the government that introduced English medium instruction at secondary level. Presently, science graduates, in general from all universities, lack the ability to teach in the English medium. Because of their limited language fluency, they are unable to use the language to teach. Therefore, a measure to increase the language development of the students in FAS is needed, along with their content development.

1.6 Research Questions

The research questions are designed based on two constructs: investigating perceptions and investigating practice. Thus I investigated students' and lecturers' perceptions regarding students' lecture comprehension and lecturer-student interaction. Research Question 1 deals with perception with regard to the students' lecture comprehension abilities (RQ 1.1), and investigates the factors that influence students' lecture comprehension (1.2). Research question 2 also deals with perceived lecture comprehension but it analyses how the students overcome their lecture comprehension problems, by paying attention to two secondary research questions (2.2 and 2.2) that investigate the support students expected of the lecturers and the support lecturers provided to the students respectively to overcome their lecture comprehension problems.

In relation to the investigation of perception, research question 3.1 investigates the perception of lecturer-student interaction, while question 3.2 investigates the factors that influence classroom interaction.

With regard to classroom practice, research question 4 deals with the occurrence of lecturer-student interaction at FAS and the three secondary research questions investigate lecture discourse to find the types of questions asked (4.1), the pattern of interactional episodes present (4.2) and the type of overall lecture discourse (4.3) found. The findings relevant to all these research questions are presented in chapter 6 separately. The main and secondary research questions are presented below:

1. In ESL undergraduate Science lectures what are the NNS students' and NNS lecturers' perceptions regarding:
 - 1.1 students' lecture comprehension abilities?
 - 1.2 the factors that influence students' lecture comprehension?
2. How do the students attempt to overcome their lecture comprehension problems?
 - 2.1 What kind of support do students expect from the lecturers to solve their comprehension problems?
 - 2.2 What kind of support do lecturers provide?
3. In ESL undergraduate Science lectures what are the NNS students' and NNS lecturers' perceptions regarding:
 - 3.1 lecturer-student interaction (defined as the asking and answering of questions in lectures)?
 - 3.2 the factors that influence lecturer-student interaction?
4. To what extent does lecturer-student interaction occur in FAS lectures?
 - 4.1 What types of questions do lecturers (or students) ask?
 - 4.2 What patterns of interactional episodes are found?
 - 4.3 What types of overall discourse are found?

1.7 Structure of the thesis

This thesis is divided into eight chapters. In this introductory chapter, I have briefly explained the context for the study, the reasons that prompted me to conduct this study, and how it fills the research gap in the domain of lecture comprehension and

(particularly) dialogic interaction in ESL science lectures. In addition, I have tried to locate this study within the sociocultural and dialogic interactional perspectives.

In chapter 2, I continue to set the context for this study by referring to the changing language policies of Sri Lanka which was ruled by different colonial powers over the centuries and explain how the country changed her language priorities between the vernacular and English. I also show that the development of teaching of English is hampered by these changing policies

In Chapter 3, I discuss a range of research in order to develop an argument that interaction between teachers and learners can enhance content and language development. This chapter brings together evidence from different studies in content, as well as language, classes.

Chapter 4 deals with the methodology used in this study. The objective of the study is to investigate perception and practice pertaining to lecture comprehension and lecturer-student interaction and therefore in this chapter I deal with suitable methodologies and methods for the collection of data to match the research aims.

In connection with methodology, a detailed discussion of the design of a suitable analytical framework for lecture discourse is given in chapter 5. This chapter explores how the lecture discourse data collected in this study can best be analysed, and presents a system suitable for the overall lecture discourse pattern of FAS. This framework includes a system for categorising lecturers' questions.

Chapter 6 presents the findings arranged in the order of the RQs. These findings include the analysis of the students and the lecturers' perceptions of lecture comprehension and lecturer-student interaction and also discusses themes which

emerged from the data and analysis but which were not part of the original research design. In addition, the chapter presents the findings from the application of the analytical system developed in chapter 5. It focuses on the three analytical components identified in this study: lecturers' questions, the pattern of interactional episodes and the overall type of lecture discourse. At the end of the chapter I explain how data and findings from the different research methods validate each other.

Chapter 7 is structured around four key discussion questions that are used to build a critical exploration of the reasons for students' lecture comprehension difficulties and the low level of lecturer-student interaction at FAS in relation to other L2 contexts in Sri Lanka and Asia.

Chapter 8 brings the thesis to an end by highlighting the key findings, discussing the limitations of the study, and presenting the significance of the findings for others who research into interaction within Sri Lanka and further afield.

CHAPTER 2 – CONTEXTUALISING THE STUDY

2.1 Introduction

2.1.1 Introduction to the study

Having described the circumstances that led to the initiative of this study, and also discussed the rationale for undertaking this study at FAS within the Sri Lankan, as well as the Asian, context in the introductory chapter (Chapter 1), I move on to explain further the context of this study by describing the educational situation in Sri Lanka broadly, and English education very specifically. In this chapter I am going to describe three aspects of the study. Firstly, how the language policies of the government over the period from colonisation to decolonisation changed the importance given to the English language and how the English language survived as a dominant language in Sri Lanka, and the challenges it faced during its re-emergence. Secondly, the present structure of the education system in Sri Lanka, and finally how the present study fills a gap in research in a country like Sri Lanka in the area of lecturer-student interaction.

Though this study was undertaken at a tertiary level educational institute in Sri Lanka, it is necessary to look at the structure and development of the education sector in Sri Lanka from the past to the present without narrowing the focus to the tertiary sector only. This is for two reasons. Firstly, Sri Lanka (formerly known as Ceylon), which was ruled by different European colonial powers, has a complex system of education, and has been subject to constant changes in its educational and language policies at all levels (e.g. secondary, tertiary, etc.). Sri Lanka gained independence in 1948 from the British who ruled Sri Lanka from 1796 until her independence. Before the British took control of the island, the Portuguese and the Dutch ruled the country, invading the island in 1505 and 1656 respectively.

Secondly, input into the tertiary sector comes from the secondary sector and therefore, any changes that take place in secondary education are reflected in the tertiary sector.

2.1.2 Introduction to the chapter

In this chapter, I initially present the geographic and demographic details of Sri Lanka. The island needs an introduction as only a few research studies have been carried out in the field of Applied Linguistics, and many may not be aware that the country has different languages and connected issues in the medium of instruction, though the recently ended civil war is known to many. This description is followed by the presentation of an overview of the education sector, during three periods: the pre-colonial, colonial and contemporary periods. The education and language systems of the three periods differ considerably. Moreover, from the colonial period to the contemporary era the major policy changes that have taken place in the education sector have revolved around the issues concerning the medium of instruction, so an account of these changes is beneficial for the present study. Another concern in this study is the problems in English medium instruction. Therefore, more attention is paid to the medium of instruction and related policy changes in the review. Finally, in order to get a complete picture of the context of the study, the tertiary sector, the study location and the participants are also explained.

Geography

Sri Lanka, a small island in the Indian Ocean, is located off the south-eastern tip of the Indian subcontinent. It is around 432 kilometres in length with a total area of 65,610 square kilometres. Sri Lanka is divided into 9 provinces and 25 administrative districts. Each province has their own provincial council to govern the province and has been vested with limited power, such as education and health, but the authority of

land, security including higher education, lies under the purview of the central government.

Demography and Religion

Sri Lanka's current population has been estimated to be around 20.27 m¹ (Department of Census and Statistics, n.d(a)). The major ethnic groups are Sinhalese, Tamils (including Indian Tamils)² and Sri Lanka Moors. The religious affinity of each ethnic group varies. Within Sinhalese, the majority are Buddhists, while Tamils are predominantly Hindus. But there is a certain percentage of Christians within Sinhalese and Tamils while all the Sri Lanka Moors are followers of Islam. The census in 2001 shows that out of the total population, 76.7% were Buddhists, 8.5% were Muslims³, 7.8% were Hindus, and 6.1% were Roman Catholics (Department of Census and Statistics, n.d.(b)). However, this census failed to accommodate the people in the North and the East, and therefore cannot be considered as valid because a higher number of Hindus as well as Muslims live in the northern and eastern provinces.

Languages

Two major languages are spoken in Sri Lanka: Sinhala and Tamil. These are native to Sri Lanka. Sinhala is spoken as the first language by the majority of Sinhalese and a minority of Sri Lanka Moors and Indian Tamils. The Tamil language is the mother tongue of Tamils, as well as the Sri Lanka Moors. In addition, English, introduced by

¹ The provisional estimate for 2008 is 20.27 m. At the last census in 2001 it was 18.74 m.

² They migrated from India during the British period, mainly as a labour force for the tea estates

³ This includes around 50,000 Malay Muslims (as at 2001) who are descendants of Malaysian migrants. They together with Sri Lanka Moors are called Muslims.

the British when they invaded in 1796, is spoken as a first language by a limited number of Sri Lankans, although official statistics are not available.

2.2 Education in pre-independence Sri Lanka

2.2.1 Education in pre-colonial Sri Lanka

In the past education was provided by religious schools. There were three kinds of school system in ancient Sri Lanka (Sharma, 1976). These systems were developed in conjunction with the religious affinity of the ethnic groups. The Sinhalese, who practised Buddhism, established village schools, '*Pansalas*' (temple schools) and '*Privenas*' (colleges). The education in these schools was based on religious principles and was deemed to have adopted the models from the 'ancient elite lineage of Taksashila and Nalanda universities in ancient India, which were recognized as (sic) foremost learning institutions in human history' (Dhammaratna, 2009: 7).

The Tamils also followed a similar pattern based on their religion, Hinduism. One of the castes, the Brahman caste, was responsible for teaching and learning. The Hindu scriptures formed their subject matter. The Sri Lanka Moors (Muslims), who settled from Arabian countries during the 10th and 11th centuries⁴ and practised Islamic principles, established their own religious schools. Their religious schools were housed adjoining the mosques where they performed their religious observances. However, there is little evidence to show what percentage of students attended the vernacular schools in the past before the colonial rulers invaded the country.

⁴ Some indicate their presence from the 7th century

2.2.2. Education in colonial Sri Lanka

Ruberu (1962) suggests that with the arrival of western rulers from the beginning of the 16th century A.D. the indigenous system of education started to disintegrate. After the invasion by the Portuguese, the first western school was established in the island in 1505 (Sharma, 1976). At a later stage, the Dutch and the British were interested in establishing mission schools on the island. The mission schools established by the British provided education through the medium of English, while the missionaries who managed these mission schools had another function of propagating Christianity too.

The Sri Lankan education system reflected mainly the British model. In Britain there were two types of schools at the beginning of the 19th century. One was the charity and village schools, which catered to the poor working masses. The other was grammar and public schools. Of these latter group public schools served poor children, while the grammar schools accommodated academically bright students from the working and middle classes. It is the latter type of school that was promoted on the island by the British. Also, it was claimed that the overall objective of establishing western schools was to teach Christianity (Sharma, 1976).

During the latter stages of British rule three types of schools emerged: English schools (or private schools), Anglo-vernacular schools and vernacular schools (Warnasuriya, 1969). English schools were run mainly by the Christian missionary societies and they were private and fee levying. Children from the upper middle class were educated in these schools. These schools taught a curriculum similar to that of the public schools of England and prepared students for Cambridge Junior and Senior certificates (ibid). The subjects included Religion (Christianity), English Language

and Literature along with History and Geography (of England). The Anglo-vernacular schools or bilingual schools were established to serve the officials working in the government sector. These schools provided instruction in local languages at lower level and English at higher level (Raheem and Devendra, 2007) and prepared their students for the local examinations. The vernacular schools conducted the entire education in the mother tongue and provided only elementary education for the poor rural people.

In the early 1900s, realising the problems of the rural population in gaining education, the government promoted vernacular schools. Brutt-Griffler (2002) estimates that there were around 4,000 vernacular schools from the last decade of the 19th century through to the end of the colonial period. As a result, students attended these schools en masse and the literacy rate also rose. Even though private schools were also set up to provide English medium education for the middle class and urban elites, by the 1950s English was not taught to these students at primary level (Raheem and Devendra, 2007). In addition, in the 1940s, the number of students attending the English schools was very low (around 7% of the school going population), while the number of English schools (state owned) witnessed minimal growth – from 124 in 1889 to 255 in 1927 (Brutt-Griffler, 2002). In the same period, several other changes took place in favour of vernacular education. In 1939, the education ordinance act was established. In 1943, a special committee recommended that the mother tongue should be used as the medium of instruction instead of English. In 1945, the then minister of Education, C. W. W. Kannangara, passed a bill in the state assembly to provide free education for all (Raheem and Devendra, 2007). As a result, students were given access to education in the vernacular languages: Sinhala and Tamil, and the

importance given to English medium education waned at the time of independence in 1948.

2.3 Education in post-independence Sri Lanka: From Sinhala towards English as a medium of education

In post-independence Sri Lanka the government tried in several ways to diminish the role played by the English language and to give the Sinhala language a firm root. One such measure was making Sinhala the official language of Sri Lanka in 1956. For political reasons, the then government, through the Official Language Act No 33 of 1956, made Sinhala the only official language of Sri Lanka. This policy enhanced the importance given to the teaching and learning through the Sinhala medium, which affected not only English medium education but also the use of Tamil too (Canagarajah, 2005; Samarakkody and Braine, 2005; Perera and Canagarajah, 2010). Following the introduction of this act, the government systematically discouraged the establishment and running of English private schools. Raheem and Devendara (2007) describe the following:

A large number of private schools which had been supported by grants from the government had perforce to join the state system, which also required that teaching in the English medium be abandoned in favour of local language instruction. (P. 189)

Though the medium of instruction in the tertiary sector was English at the beginning, the free education policy of the government and the promotion of mother tongue instruction at secondary level had a major impact on the medium of instruction at the universities also. The national policy changes in the secondary education sector were immediately realised in the tertiary sector. In the 1960s, the University of Ceylon started to teach the students in the mother tongue (Raheem and Devendra, 2007). But, this teaching was confined to courses in the Arts and related fields, whereas courses in

Science, Medicine, Engineering and science related subjects continued to be taught in English.

Even though successive governments in power neglected the importance of English medium education, they could not isolate the English language from society because of the importance it has as a global language. Canagarajah (2005) explains in detail this phenomenon:

Even though Sinhala became the official language of administration, and both vernaculars took over primary and secondary education (with English taught as a second language), it was difficult to dislodge English from many other domains. English remained the language of higher education, commerce, communication, technology and travel. In this sense, English was still a working official language in many institutional domains. Added to this was the power English derived from being an international language, which still assured it a prestigious position in the Sri Lankan society. (p. 423)

It is, therefore, understood that the attempt to develop the vernacular languages, mainly Sinhala over English, has not been as successful as expected. Canagarajah (2005) further explains that people, especially Tamils, continued to learn English, as they believed that '[...] English was still associated with certain material advantages, both within the island and outside' (p. 424). Raheem and Ratwatte (2004) also explain the firm role English had taken in society after independence. They argue that there was a contradiction between government policies and the practices on the ground. Though English had lost its status as an official language, it continued to be used in international trade and higher education institutes, etc. The teaching of Science and Medicine at tertiary level institutes continued in English, as mentioned above.

Furthermore, Kandiah (1984) argues that though nationalisation of private schools tried to promote the indigenous languages over the English language, the prominent role played by the English language could not be reduced by the government. Therefore, in the 1980s when English started to capture its place back in the education

sector, the immediate response came from private schools to provide English. These schools, also called international schools, mushroomed in the metropolitan areas, mainly in the capital, using English as the medium of instruction. However, their number is just around 1% only (Department of Census and Statistics, n.d.(c)) compared to government schools. These private schools, which were originally meant to accommodate the children of expatriates, later admitted locals who could afford to pay a handsome fee for these schools.

The government, realising the need for the development of the English language, took several steps at the end of the 20th century. A National Education Commission was established under the National Education Commission act No. 19 of 1991. The function of this commission was to make recommendations to the President on educational policy and practice. The formation of the commission was followed by the formation of the Presidential Task Force on General Education. This committee comprising of eminent educationists and university academics studied the status of secondary education of the country and submitted its recommendations, known as the General Educational Reforms 1997. One of the important recommendations pertaining to English education was the introduction of a subject called ‘GCE A/L General English’ from 1998. GCE A/L is the final stage of school education.⁵

Previously English was taught as a subject up to the GCE O/L only. Later students learnt English formally when they entered the universities, leaving a gap at the GCE

⁵ The school education is divided into three phases: primary, junior secondary, and senior secondary. Students join schools in grade 1 when they complete five years of age and follow the primary education for five years. At the completion of primary education students enter the junior secondary level and it lasts for four years (grade 6 – 9). This is followed by senior secondary level for another four years. Senior secondary level is made of two cycles: GCE O/L (General Certificate in Education Ordinary Level) (Grade 10 & 11) and GCE A/L (General Certificate in Education Advanced Level), for two years. These two cycles have the national level exit examinations for the school students.

A/L level, except for a few who followed English Literature as a subject. In order to fill this gap the General English course was introduced in 1998 and the first batch of students sat the examination in 2000, but the pass rate of this subject has not been satisfactory (around 25% at National level) (personal communication with an official of the department of examination⁶, March 2010). The department of examinations is yet to publish the statistics on this.

The reforms also suggested introducing Activity Based Oral English (ABOE) at grade 1 and 2, the first two years in primary school. Previously the formal teaching of English language commenced from grade 3 only. This new initiative provided class teachers with a set of vocabulary and they were supposed to develop students' oral skills based on these words associated with their immediate environment, but the successful implementation of this is also an interesting question as the teaching of ABOE is dependent on class teachers who are trained in subjects other than English. Atugoda (2007) has pointed out in connection to this, that '[T]he drawback that has been there up to now was that all these Grade 1 & 2 teachers have not undergone adequate training to learn methodologies to be used in introducing English at these grades' (2007: n.p).

Another change that took place is the introduction of English as the medium for Science subjects. The government in a recent move in early 2000 advocated the introduction of English medium instruction in different grades especially for Science subjects. The reform suggests that at lower grades the mother tongue should be the medium of instruction but in Grade 6, Mathematics, Science and IT subjects could be

⁶ Personal communications are not included in the reference list as the respondents did not want them to be identified.

taught in English along with the teaching of other subjects in Sinhala or Tamil. In addition, it was also recommended that in the secondary level classes (GCE O/L and A/L) students could be given the option of studying any subject in the English medium and the decision to select the subject would be dependant on the resources available in the schools. Based on these reforms some schools in the urban areas took up the challenge of shifting to English medium in the year 2002 (Perera, 2009). This change took place only in schools which had adequate resources, such as competent teachers, especially in the science stream.

This policy of the government brought some problems. Perera (2009) found that there are inconsistencies over the policies in implementing this project in advanced level Science classes. Only those students who were already competent in English were absorbed into the English medium cohort while others were marginalised. This situation was seen as a threat to the policy of the government, which was attempting to improve the language proficiency of all students. In addition, a lack of textbooks and a lack of competent teachers were other problems that hampered its wider implementation.

In 2003, it was estimated that only 1882 students (0.05%) were enrolled in the English medium classes in all grades on the island. This is very marginal compared to the 4 million overall enrolments (Ministry of Human Resource Development, Education and Cultural Affairs, 2004). In 2006 this situation seemed to have improved slightly as there were 437 schools which taught in two (Sinhala and English or Tamil and English) or three languages (Sinhala, Tamil and English), enrolling around 42,000 (1.1%) for English medium classes (Ministry of Human Resource Development, Education and Cultural Affairs, 2007). But, the problems pertaining to

the English medium remain unresolved as revealed by Dissanayake (2009). He maintains that the problem of the acute shortage of competent teachers still prevails, even in the leading schools in the urban areas. Although some schools have already taken the initiative to conduct the English medium classes at the GCE O/L, they are unable to allow the students to continue their education in the same medium at the GCE A/L, owing to the shortage of competent teachers to teach for the A/L English medium classes. Therefore, Dissanayake indicates that these students have to go back to the mother tongue instruction in the GCE A/L. This situation has led to the educational authorities being blamed for introducing English medium instruction without proper planning.

English medium education faced another challenge that is politically motivated. For example, the Janatha Vimukthi Peramuna (JVP), a political party, opposed the moves for introducing English medium in government schools. The JVP, indicating the poor performance of GCE O/L students who sat in the English medium compared to the mother tongue students, requested the government to give up the change in the medium of instruction (The island, 19 November, 2008), while the voice for more English education has also been raised (De Mel, 2007; Wanigasekera, 2010), opposing the above view of JVP (Illepperuma, 2008).

In the meantime, the government's initiative to improve the oral language skills of the students at secondary level is a new initiative undertaken with the collaboration of the Indian government. The year 2009 was declared as the year for English and IT by the government. The mission of this project and the outcome will only be seen in the future.

Having looked at how the English language regained its position and the government's endeavours to re-establish the English language in the island and the challenges faced in this regard, next I am going to describe education in contemporary Sri Lanka.

2.4 Education in contemporary Sri Lanka

2.4.1 Primary, secondary and tertiary sectors

2.4.1.1 The primary and secondary sectors

Today the ministry of education is responsible for the entire management of the secondary education system in Sri Lanka. It is headed by a minister of education and two deputy ministers. In addition, there are provincial education ministries and departments to manage the schools at the provincial level. However, the provincial departments are vested with only a limited power as mentioned earlier, while major policy planning and implementation are performed at the ministerial level. Each province is divided into districts and zones in order to decentralise the administration of schools. There are ninety-three zones on the island.

When passing the GCE O/L examinations students either enter the GCE A/L cycle or leave school and follow vocational training or technical education. If they decide to enter the advanced level studies, they select different streams such as Biological Science, Physical Science, Arts, or Commerce. This choice is more influenced by the performance at the GCE O/L and less on personal interest. Of the students who sat for the GCE O/L in 2005 as school candidates⁷, only around 50% sat the corresponding GCE A/L exam in 2008. That means only around half of the students completed the

⁷ In the year 2005 another 25% sat the exam as private candidates.

cycle up to the A/L, while others left at the GCE O/L (Department of Census and Statistics, n.d. (c)).

Students, upon their successful passing of the GCE A/L examinations, are admitted to universities on a Z-score system by the University Grants Commission (UGC). The students with higher Z-score, which is similar to the GPA, from each stream (e.g. Biology or Mathematics) gain admission to university. Hence, gaining admission to university is a highly competitive task in Sri Lanka. Annually only around 15% of the eligible students are admitted to universities. For example in the year 2008, out of a total of 130,120 candidates who were eligible to enter university, admissions were given to 20,069 students only (Department of Census and Statistics, n.d. (a)).

2.4.1.2 The tertiary sector

There are 15 universities at present in Sri Lanka. All are funded by the government, except the Open University of Sri Lanka which is self financed. The University Grants Commission (UGC), which was established under the Universities Act No. 16 of 1978, is the apex body of the University System in Sri Lanka. It manages the admission of students to different universities and lays regulations to manage the universities. Sri Lankan universities offer education free of charge for their internal students admitted through the UGC.

Students enter universities between the ages of 18–20. As mentioned previously only 15% of all the qualified students from GCE A/L are admitted on a competitive basis. The percentage of these students of the total population of Sri Lanka is 0.01. However, what percentage of the 18–20 age group enter university is not known as there is no census data available for that particular age group. In addition to these

university entrants, it is estimated that around 7% of the qualified students go abroad to pursue their studies. The World Bank's (2009) latest report on higher education estimates that at least 390,000 students enrolled in higher education in the 2006/2007 academic year, of whom 88% were in the public sector and 12% were in the private sector⁸. In addition, around 58% of the 390,000 were following external degrees in different universities in Sri Lanka. The Open University of Sri Lanka, the only higher educational institute that provides a distance mode of education, enrolled 8% of the students. This reveals that not all those students who are qualified to enter university receive opportunities for tertiary education in Sri Lanka as regular internal students of universities.

The constitution of Sri Lanka entitles a person to be educated through the medium of either of the national languages (Sinhala or Tamil). However, it stipulates 'provisions of this paragraph shall not apply to an institution of higher education where the medium of instruction is a language other than a National Language' (Ministry of Constitution and National Integration, n.d.). This clause sanctions English medium instruction in universities. The medium of instruction in many of the universities has been English for Science, Engineering and Medicine. Also, some universities offer English medium courses for Management and other related fields. Generally, Arts and Humanities courses are conducted in Sinhala or Tamil. However, the University of Peradeniya, the biggest residential university in Sri Lanka offers Arts courses in all three languages: Sinhala, Tamil and English.

Recently under the restructuring of university education there have been voices raised to convert the medium of instruction to English in the Arts and related courses too,

⁸ Even though there are no private universities in Sri Lanka, some private institutes offer degrees.

but the universities are not showing any positive response due to the poor language proficiency of students as well as lecturers. Many of the lecturers teaching in Arts related courses followed their degrees in the mother tongue, so it is feared that they would not be able to cope with teaching in English. I discuss the impact of English medium instruction in the discussion chapter. In addition, the recently implemented IRQUE (Improving Relevance and Quality of Undergraduate Education) project in Sri Lankan universities has spent a considerable amount of money on enhancing the English standard of the undergraduates, but the outcome of this project is yet to be evaluated.

2. 4. 2 Teaching English at primary, secondary and tertiary levels

2.4.2.1 Teaching English at primary and secondary levels

English is a compulsory subject from grade 3 of primary school to advanced level. In schools, at all levels (primary, junior secondary and senior secondary) English is taught as a subject for 5 periods. At primary level each period lasts for 30 minutes duration, while in the upper levels the duration is 40 minutes. Usually there are two term tests (1st term and 2nd term), followed by a year-end examination in an academic year. The first national level examination for the students including a subject in English is held at the GCE O/L.

In addition to English Language examinations, limited numbers of students, who are already somewhat fluent in the English language, take an English literature examination also at the GCE O/L. Only the schools in the metropolitan areas prepare the students for this examination. It is noteworthy that the majority of the student

population of FAS come from the rural areas and so do not sit the GCE O/L Literature examination.

2.4.2.2 Teaching English at tertiary level

Traditionally at Sri Lankan universities, teaching English Literature was very popular compared to Language or Linguistics. Most of the academics attached to the Department of English of older universities (e.g. University of Peradeniya and University of Colombo) specialised in English Literature and they trained a small number of students for a special degree in English each year. In addition, the general degree programme of several universities for the Arts students offered English as a subject along with other subjects (i.e. Economics, Political Science, etc.) to be taught over a three year period. The students who had already passed the GCE A/L English Literature were selected for these courses, though some new universities enrolled others too, based on their fluency in the language. Almost all these subjects in these degree programmes were relevant to English Literature, while only a few focused on Linguistics.

The result of the above situation was that English Language courses were not available for the majority of the student population, and therefore in the early 1980s the University Grants Commission established the ELTUs (English Language Teaching Unit) in all universities in order to teach optional English Language courses during a pre-sessional academic programme to students irrespective of their medium of instruction. However, as individual universities are allowed to have their own programme, the content and length of the programmes vary between universities.

ELTUs in the 1990s, as indicated by Canagarajah (2005), taught EAP/ESP (English for Academic Purposes/ English for Specific Purposes) type courses for those in the

English medium courses (i.e. Science and Engineering) and also started to teach ongoing English Language courses for several degrees along with regular academic subjects. In addition, the standing committee on English teaching of the University Grants Commission has suggested teaching a General English component as a mandatory programme during the first semester of the first year in all higher educational institutes from the early 2000s.

Having given an overview of the Sri Lankan education sector; both secondary and tertiary, now the description will turn towards the study location, and participants of the research in order to get a clear picture of the context of the study.

2.5 The context of the study

The study was undertaken at one of the universities in Sri Lanka. The university was established in 1995. It has four faculties, namely the Faculty of Arts and Culture, Faculty of Management and Commerce, Faculty of Applied Sciences (FAS) and Faculty of Islamic Studies and Arabic. Of which the Faculty of Applied Sciences (containing the departments of Biological Sciences, Physical Sciences and Mathematical Science), where this study was undertaken, is located away from the main campus. In the university at the time of the data collection the student population was estimated to be around 1800, while the student number at FAS was only 186.

Subject lecturers

The lecturers are usually recruited to the faculty as probationary lecturers (junior lecturers). The basic qualification required for the post of probationary lecturer is a special degree (four years duration) in the relevant field with a first or second class pass and teaching experience of a minimum of one year. Some of them are appointed

as senior lecturers when they possess a master's degree or above. As this is a new university, even a junior lecturer may conduct lectures for second or third year students, whereas in other universities only senior lecturers conduct classes. The junior lecturers, who are kept on probationary period, are allowed to complete postgraduate study with a research component within eight years from their date of appointment. In addition, they are also asked to follow a staff development programme⁹ as a mandatory requirement. When they fulfil these two requirements, with five years experience, they are promoted to the next grade, senior lecturer (grade II). Failure to secure a senior grade within eight years results in either demotion to temporary lecturer or termination from the post (at least in theory).

In FAS, there were 30 academic staff. Of them two-thirds were senior lecturers, while the remainder were junior lecturers at the time of data collection. In addition, there were around 15 temporary instructors/tutors/ demonstrators (similar to TAs (Teaching Assistants)) who were recruited on an annual contract.

Students at FAS

The major intake for FAS comes from the eastern province where the university is located. The language problem prevails among these students as generally the opportunities for learning English either at school or in society are poor. Moreover, there is an acute shortage of English teachers in this region. The university takes measures to teach these students English during the pre academic programmes and through ongoing English classes, as mentioned in the previous chapter. The profile of the students at FAS is given in table 2.1 below.

⁹ These programmes are held for junior lectures to improve their teaching capacities, organized by the University Grants Commission.

For the last two years the University Grants Commission has admitted students from various districts under special admissions criteria. Therefore, presently there are mixed ethnic students: Muslims, Sinhalese, Tamils and Christians in the present first year and second year, speaking two first languages, Tamil and Sinhala.

Table 2.1: Student population in FAS (as at October 2009; at the time of data collection)

Year	Male	Female	Total
1	38	26	64
2	22	31	53
3	21	20	41
4 ¹⁰	1	2	3
Total	82	79	161

2.5.1 Addressing the gap

My involvement with students at FAS for the last 12 years, in addition to formal meetings and informal chats with subject lecturers, indicates that students in the English medium classes at FAS continuously find difficulties in comprehending lectures delivered in English and also in participating in classroom discussions. I have explained the reasons for these problems in the introduction chapter.

There is a greater role for the science graduates to teach in the English medium at the secondary level in order to take forward the policy initiative of the government that introduced English medium instruction at the secondary level. We have also discussed in chapter 1 that presently science graduates from all universities lack the ability to teach in the English medium because of their limited language fluency, although their subject knowledge is good. Therefore, it is against this backdrop that I am curious to try to find alternative ways that could support the language development of the students at FAS.

¹⁰ It is usually a general degree that lasts for three years, but a few students are given the opportunity to do a special degree each year for four years.

Though English medium education has been researched by Sri Lankan academics and researchers, their focuses have been divergent. For example, Suresh Canagarajah (1993, 1999, 2005) was interested in the sociolinguistic aspects of his region (Jaffna), Chitra Fernando (1977) focused on bilingualism, Ryhana Raheem on language policies and language learning (e.g. Raheem and Ratwatte, 2004; Raheem and Devendra, 2007), while Manique Gunasekara (2005) was interested in Sri Lankan English (i.e. the variety of English).

Publication of educational journals is also limited in Sri Lanka. Though there are local publications from time to time, none of them are regular. Lack of resources and lack of researchers could be considered as reasons for this irregularity. The journals published in Sri Lanka are: '*Navasilu*' (light), published by the English Association of Sri Lanka; the *Sri Lanka Journal of Educational Research*, published by the National Institute of Education, Sri Lanka; *the Sri Lanka Journal of Humanities and Social Sciences*, published by the National Centre for Advanced Studies in Humanities and Social Sciences; and *the Open University of Sri Lanka Journal*. However, none of these journals publish regular issues. In addition, there is a peer reviewed quarterly published by SLELTA (Sri Lanka English Language Teachers Association), in collaboration with the British Council, Colombo. Though this quarterly is published regularly, most of its contents are based on classroom practices and teaching hints.

Moreover, there have been no published articles locally, either in journals or newspapers, which explore the teaching style of secondary or tertiary level lecturers, lecture comprehension of students or the lecturer-student interaction in the classroom similar to the present study, except Sally's (1985) study which I discuss in the next chapter.

In the absence of any previous studies in the Sri Lankan context on lecturer-student interaction at tertiary level and given that only a few studies have examined the importance of interaction in tertiary-level L2 Science classes outside Sri Lanka, this study is believed to contribute to the knowledge domain by filling a gap in this area of research.

2.6 Chapter summary

In this chapter I have described the educational changes that took place in Sri Lanka from pre-independence to the contemporary period, paying attention to how the importance of the English language has been reduced since decolonisation for political reasons. The Sinhala only policy which was implemented in 1956 was the major turning point for such change. Despite these measures, however, English survived as an important language in commerce, trade and in higher education. When the government realised that it should return to English, other factors, such as the shortage of English teachers, lack of other resources and political challenges hindered the development of English education. As a result, the government continues to struggle in its effort to develop English education. Along this line, I will focus on how the absence of policy in the education sector affects English education in the discussion chapter.

Having set the context and a space for this study in the first two chapters, now I move on to review the literature relevant to the study in the next chapter.

CHAPTER 3 – LITERATURE REVIEW

3.1 Introduction

In the previous two chapters, I described the background details of this study. In chapter 1, I located the study within the sociocultural and dialogic perspectives, and in chapter 2, I explained the Sri Lankan educational context, with special reference to English education. In this literature review chapter, I discuss studies pertaining to the two problems that are being investigated in the study. They are (i) difficulties of L2 tertiary level science undergraduate students in the English medium instruction in understanding lectures and (ii) their poor oral skills. More importantly I show the existing gaps in this area of research and explain how this study can fill these gaps. In addition, in this thesis attention is paid to how lecture delivery, mainly dialogic lecturer-student interaction in lectures, can favour the students' lecture comprehension and enhance their oral skills.

In this study, I am going to pay attention to lecture comprehension studies in L2 tertiary level content classes as well as interaction studies in the same context including ESL and L1 contexts. The rationale behind moving away from the L2 tertiary level context encompasses two reasons. One is the absence of sufficient studies in lecturer-student (or teacher-learner) interaction in this context, particularly studies that deal with dialogic interaction. The other is that interaction has already been investigated in ESL (English as a Second Language) and CBI (Content Based Instruction) classes including immersion for their benefits in language and content development.

With regard to the organisation of this chapter, initially I discuss the studies that investigate students' lecture comprehension problems, especially at tertiary level. Next, I discuss the interaction studies in the contexts of immersion and CBI classes

for their relevance to the present context, followed by a review of studies in L1 content classes at secondary level, and L2 content classes at tertiary level. Furthermore, discussing the benefits of interaction in content classes, I move on to dialogic teaching and learning that stresses the dialogic nature of interaction. I focus on the theoretical basis of dialogic discourse and dialogic teaching. Based on the principle of dialogic interaction, I develop an argument that dialogic interaction can be beneficial for students' content and language development. Finally, I discuss the practical implications of dialogic teaching including its problems, and also review the two known studies that deal with dialogic interaction in tertiary level content classes.

3.2 Lecture comprehension studies

As more and more students have started to study in the medium of English, especially at tertiary level, the ability to comprehend academic lectures has been a challenge for those students (Flowerdew and Miller, 1992). A lecture, among other instructional media, is considered to be a central instructional activity (Flowerdew, 1994) and is the most common means of conveying the content knowledge to students in Sri Lankan universities.

Boyle (1984) identified three major factors that influence ESL students' listening ability, these are: listener factors, speaker factors and factors in the material and medium. While Boyle's classification is suitable for ESL classes, in content classes problems in lecture comprehension occur for several reasons. They may occur as a result of the existing mismatch between students' and lecturers' expectations, lack of understanding of students' problems, strategies lecturers adopt (Flowerdew et al., 2000). They also occur due to reasons that are related to lecturers' personal attributes such as speed of delivery, accent, interpersonal factors, etc. as well as students' poor

linguistic abilities such as poor vocabulary skills, and poor listening skills (Yousif, 2006) including failure to understand discourse organization (Chaudron and Richards, 1986).

Some lecture comprehension studies have focused mainly on the textual aspects of the lecture discourse such as discourse markers (Chaudron and Richard, 1986; Flowerdew and Tauroza, 1995) and note taking (Dunkel, 1988; Dunkel, Mishra and Berlina, 1989; Chaudron, Loschky and Cook, 1994). Focus on the importance of interpersonal features in lecture comprehension has gained momentum in the recent past from an interactive perspective (Rounds, 1987; Northcott, 2001; Crawford Camiciottoli, 2004, 2005; Fortanet, 2004; Morell, 2004, 2007; Webber, 2005). For example, Morell identified four features as interpersonal. They are personal pronouns, discourse markers, display and referential questions, and the presence of negotiation of meaning, while Crawford Camiciottoli (2005) identifies first and second person pronouns, questions, and asides as interpersonal features. These studies claim that the use of interpersonal features can enhance the closeness between students and lecturers in classes and enhance the interaction between them. Interaction, in turn, is believed to contribute to lecture comprehension, as is argued in this thesis.

The studies that investigated lecture comprehension problems from the point of view of students' and lecturers' perceptions adopted an ethnographic approach and focused on students' problems and strategies in lecture comprehension (Benson, 1989; Flowerdew and Miller, 1992, 1996b; Flowerdew, Miller and Li, 2000). Of these lecture comprehension studies, Benson (1989) studied a single non-native student's actual listening activities during one academic year using a descriptive ethnography, in which primary materials were gathered by participant observation, as well as key-

informant interviews with both the teacher and the student. Secondary sources such as the teacher's class outline and the student's written work were also studied. Though the sample was only a single student in that study, Benson was able to collect a considerable quantity of data and was also able to show how the learning requirement pushed the ESL student's whole attitude toward the course, how content should be treated to train the ESL students, how different skills should be handled to train the students, and finally how ESL students should be trained to be actively involved in oral activities.

Flowerdew and colleagues (1992, 1996b and 2000) conducted a series of studies of second language lecture comprehension among a group of Hong Kong Chinese students. They used observation, questionnaire, self-rating of perception, diary study, interview, etc. to collect data on perception of lectures, problems and strategies based on an actual lecture course. Of these three studies, the first one identified students' problems in lecture comprehension. It was found that, among other reasons, speed of the lecture and new terminology and concepts affected students' lecture comprehension. The other two studies that investigated the lecturers' perceptions of students' problems found that students had problems mainly with vocabulary. In addition, the lecturers reported that developing a participatory style of lecturing was difficult due to poor student cooperation.

The only study to have investigated students' lecture comprehension in the Sri Lankan ESL (English as a Second Language) context is that of Sally (1985). Sally exposed Engineering undergraduates to an experimental course in listening comprehension. After exposing students for eight weeks to different lectures, when their comprehension was measured it was found that the students had difficulties in

understanding vocabulary, prepositional phrases and phrasal verbs, which in turn affected their lecture comprehension. Though the researcher claims that exposure to these experimental lectures enhanced the students' lecture comprehension (e.g. at the beginning only two students understood the lectures, while at the end nearly all were able to understand the lectures), this study suffers from several methodological drawbacks. For example, it is not stated how the researcher measured the comprehension of students, nor were the listening passages for the pre- and post-tests of listening comprehension comparable. In addition, no statistical procedures were used to measure comprehension, despite her claim that it was an experimental study.

There is only one other study (Yousif, 2006) that investigates the reasons for lecture comprehension problems in an English as Foreign Language (EFL) context that I am aware of, even though there are studies that investigate the influence of specific features on lecture comprehension (e.g. Eslami and Eslami-Rasekh (2007) studied the influence of discourse markers on lecture comprehension). In this study, conducted among Saudi Arabian students majoring in English, Yousif found that five kinds of problems affect students' lecture comprehension. They are linguistic and conceptual variables (e.g. terminology), discourse variables (e.g. difficulty in understanding longer sentences), acoustic variables (e.g. speed of lecture), environmental variables (e.g. noisy classrooms) and psychological variables (e.g. boredom).

The studies described above were conducted in different contexts. Benson dealt with NS lecturers with NNS students in an English speaking country, Flowerdew and colleagues focused on both NS and NNS lecturers and NNS students who learnt their secondary education in both English and their mother tongue, and Yousif did not specify the lecturers, while her students were NNS students who study English as a

foreign language. On the other hand, at FAS this study deals with NNS students who learn English as a second language, and some of them are non-proficient too. In addition, the problems science students face may be different from the humanities students studied by Yousif or Flowerdew and colleagues.

Previous lecture perception studies bring out the problems and strategies of both lecturers and students as reported by themselves, but one problem with perception studies is that the self-reported problems and strategies may be different from the real situation that exists. In this regard, Tauroza (2001) warns that 'listeners' perceptions can be distorted or totally erroneous' (p. 362), as subjects can overestimate or hide their problems, when we collect information based on self-reports. Therefore, there is a need to have a closer look at the practice too. Flowerdew et al. (2000) tried to observe the lectures for their study in order to triangulate the perception and the practice, but they did not go to the extent of having a detailed analysis of lecture discourse to find whether lectures were delivered in a suitable manner to assist students in understanding lectures. Nor did they investigate if the strategies reported by lecturers were really adopted in the lectures.

On the other hand, the data collected through observation and systematic recording and transcription has more advantages than the data obtained through perception only. The detailed analysis of lecture discourse made possible through this systematic analysis can identify the favourable discourse elements (e.g. interactive/dialogic) that can involve students in classroom interaction to help their content as well as language development. Moreover, Mercer (2001: 255) states:

recordings and transcriptions of classroom talk, analyzed from a socio-cultural perspective, offer us glimpses of the social, cultural, communicative process of education being pursued and, with varying degrees of success, accomplished. They may capture illustrations of the best practice [...].

Therefore, this study would be one among the few to investigate lecture comprehension problems and go further to analyse lecture discourse too.

The foregoing review indicates that only a few studies have investigated L2 students' lecture comprehension problems, while the reasons for lecture comprehension problems also vary. In addition, these studies have investigated the problem from the perception point of view only but failed to study the classroom, observing real lecture delivery. Therefore, studies are required to investigate students' lecture comprehension problems focussing on both perception and classroom practice in a context like Sri Lanka where only one known study exists, urging future research with more emphasis on classroom practice.

Having identified a gap in the research in lecture comprehension studies with an emphasis on lecture discourse, I now move on to the argument that lecturer-student interaction or teacher-learner interaction can favour comprehension and language development based on ESL, immersion and CBI classes. Though the review seems to move away from the theme of content classes to a review of ESL, immersion and CBI classes, the focus on these contexts is necessary in order to establish the background to the argument, as mentioned earlier.

3.3 Interaction studies in ESL, immersion and CBI classes

3.3.1 ESL classes

In this section, I commence my argument from ESL classes because interaction has been subject to investigation in ESL/EFL classes since 1980. Then I move on to the immersion context, followed by CBI classes. Both these contexts have a connection to the present study context, EMI. I mentioned in chapter 1 that EMI is a kind of late

immersion programme (also see footnote 38). The underlying thread I develop in this section is whether the interaction in these different contexts supports content and language development, and it is the argument that I will develop throughout this thesis.

As I briefly mentioned in the introduction chapter, the evidence for the benefits of interaction or negotiated meaning between NS teachers and NNS students has been investigated in ESL/EFL classes. Even though it was believed that comprehensible input is the necessary condition for language development in ESL/EFL classes (Krashen, 1982), later this view was challenged by psycholinguistic oriented SLA researchers (Gass and Varonis, 1985; Varonis and Gass, 1985; Pica, 1987; Pica, Young, and Doughty, 1987) who believe that negotiation of meaning between the teacher and the students are important for learning. This assertion led to the hypothesis called the interaction hypothesis (Long, 1985). The interaction hypothesis is explained through a three step logical argument that linguistic/conversational adjustments lead to language acquisition, as shown below:

- linguistic/conversational adjustments promote comprehension of input
- comprehensible input promotes acquisition.
- linguistic/conversational adjustments promote acquisition. (p. 378)

3.3.2 Immersion classes

Based on secondary level French immersion classes Swain (1985) challenged the above views. She contradicts Krashen, but, at the same time, finds that Long's assertion is insufficient. She claims that comprehensible input or negotiation of meaning may not be sufficient for successful second language acquisition (SLA), whereas the opportunities for non-native speakers (NNSs) to produce comprehensible output are also necessary. She argues that students should be given opportunities to

produce the language. That is, students should be involved in discussions (dialogue) so that they can practise the language and develop it. This view, which is also known as the output hypothesis, is similar to the view based on the sociocultural and social constructivist perspectives that dialogue can enhance students' cognitive development (both content and language) (Mercer, 1995).

Swain (1985) found that although immersion students were provided with a rich source of comprehensible input, their interlanguage (IL) performance was still not as satisfactory as expected. Her argument was based on a long running study conducted among French immersion students in Canada. She observed that immersion students' language proficiency could not be related to input received. She tested immersion students using a battery of oral production, multiple choice and written production tests for three traits each: grammar, discourse and sociolinguistic competence. Ten students who were native speakers of French were used as a control group. Both student groups were from grade six, the immersion students had undergone six years of the immersion program at the time of administering the test. The results revealed that in grammar tests the native speakers scored significantly higher than the immersion students, indicating that although the immersion students can perform at a good level they have not reached native like abilities. In the discourse competence test, in the case of the oral production test, native speakers scored significantly higher than immersion students, but in writing tests the difference in achievement between native and immersion students was low, and the same was true for multiple choice tests. Therefore, the results of the second test, discourse competence, suggest that there was less difference between native speaker and immersion students. The results of the third trait, sociolinguistic competence showed that overall native speaker performance was higher.

Based on these findings, Swain (1985) argues that her immersion students did not develop their oral and writing skills, not because they did not have access to comprehensible input, but because they were not given opportunities to produce the language. When the learners get such opportunities, Swain claims, they move from semantic processing (acquiring meaning) to syntactic processing (concentrate on form) stage. This is what she proposes through her output hypothesis. Swain (1985) regards conversational interaction as an ‘excellent opportunity for developing speaking’ (p. 248). In addition, Gass (2003) agrees with Swain and states that output could develop learners’ syntax and morphology. Therefore, the claim that the opportunities for interaction or producing output is important for second language acquisition is stressed.

Furthermore, the immersion context discussed here lends support to the claim made by Swain (1985) that interaction favours language development and that the opportunities given to learners to produce the language are more important than ‘negotiating meaning’ (Long, 1985). With this brief overview of the importance of interaction in ESL and immersion classes, next I move to CBI classes.

3.3.3 Content-based classes

Content-based instruction (CBI) is considered an umbrella term to cover a variety of approaches that focus on language as well as content learning objectives (Stoller, 2008). Even though Rodgers states that ‘the subject matter is the focus of classroom instruction; the acquisition of language is seen as a natural consequence or by-product of subject matter learning’ (Rodgers, 2006: 373), many may not agree with Rodgers. For example, Stoller (2008) argues that in the CBI approach there is a dual commitment to both content and language development, while Richards and Rodgers

(1986) claim that it is an approach to second language teaching in which teaching is organised around content topics. This view is agreed by Brinton, Snow, and Wesche (1989) as well as Dueñas (2004) who states that the aim of CBI is to integrate particular content with language teaching aims.

Though the objective of the CBI is learning a language through content there is a key question as to whether students in the CBI classroom make improvements solely in content and receptive skills or whether their production also develops (Rodgers, 2006). Connected to this, another question is whether content-based classes provide opportunities for students to learn the language mainly by producing opportunities for interaction. I refer to three studies that tried to investigate these questions below. These three studies take place in a sequence and are influenced by each other. The first and the third are content classes, while the second is an ESL class.

The first of the studies was conducted by Musumeci (1996) in a post secondary content-based classroom that teaches social geography for students who learn Italian as a second language taught by native or near native speaker teachers of L2 Italian. Her main focus was to test the negotiation of meaning proposed by the interaction hypothesis; how failure to comprehend is signalled and how messages are modified. Three lectures were recorded and transcribed. The results of the study revealed that teachers dominated the classroom talk, speaking around 70% of the time. An important finding was that they managed the classroom talk by initiating the majority of the verbal exchanges with students by means of a question. This most often occurs in the form of an explicit request for information. The major concern in Musumeci's (1996) study is that in her context teachers modified their speech without any linguistic intervention from the students. Teachers did not ask the students to modify

their speech either. As the teachers did not intervene with the students' speech or did not provide any feedback to the students, there was no negotiation between the teacher and students to modify their speech either. Therefore, Musumeci considers that content-based classes rarely provided opportunities for students to produce the language. Based on this she suggests that further research is needed to discover why teachers did not signal their nonunderstanding or encourage students to signal their nonunderstanding.

The second of these studies was carried out by Pica in 2002. She analysed how the teachers modified interaction about subject matter content in order to assist the input, feedback, and production needs of L2 learners in content-based ESL classes conducted by two ESL instructors in an American university. Data were collected by audio and video recording of class meetings for 7 weeks (1 hour a week). Pica (2002) found that even though the content-based classes provided a meaningful context for students' development of form and meaning, in practice the negotiation did not promote the focus on form. The classroom discussion focused on the subject-matter content in the L2, but teachers did not make any intervention or instruction on L2 form. In other words, her results indicate that the focus on form was minimal; teachers tended to focus almost exclusively on the content of the message and not on the learners' linguistic difficulties.

Like Musumeci (1996), Pica (2002) could not find evidence of teachers involving or assisting students in producing the language. That is, both Pica and Musumeci did not find evidence that CBI classes provide opportunities for students to develop language. The opportunities for interaction were minimal in those CBI classes and therefore, the question arises whether content classes could support language development.

While the two studies discussed above did not produce any favourable results for the relationship between interaction and language development, the third study, conducted by Rodgers (2006) based on the findings of those two previous studies, brought somewhat different results. Rodgers (2006) comments that ‘one aspect of CBI that remains controversial is the apparent gap that exists between learners’ content knowledge and their functional linguistic abilities’ (p.373). In addition, the problem Rodgers raises with regard to other researchers is that they try to separate content learning from language learning. He argues that those two are inseparable.

The basic assumption Rodgers (2006) makes is that learners in the CBI classes make considerable improvement in their oral and written production though it is not comparable to the improvement in their content knowledge. His study, therefore, focused mainly on whether the learners improved their content knowledge, written production and also speaking abilities. The context of his study was a university level Italian geography CBI course with 43 NNS students. Students were evaluated at two stages at week 2 and 12 using a cloze test, oral interview and a written composition on a content topic relevant to the lessons. The findings revealed that there was considerable improvement in the content knowledge of the learners (a 50% gain over 10 weeks from week 2). In addition, the participants’ form-function abilities improved in both written and oral production. In all cases the results were significant. Based on these findings, Rodgers considers that the CBI classes provide more meaningful and communicative contexts. Nevertheless, this study did not consider the other sources of knowledge that could contribute to their enhanced performance, other than the CBI classes. In addition, there could be possible biases in the way the tests were designed, administered and evaluated. Therefore the result of the study can be valid with further research only, with more stringent testing and evaluation measures.

Even though, Pica and Musumeci state that in CBI classes focus on form did not take place, it does not downplay the potential of CBI classes where both content and language can be developed. This depends on the ability of the teachers to exploit the focus on content as well as language. Moreover, Rodgers argues that there is a possibility in content classes to develop both content and language.

Having completed this review of CBI classes for the benefit of interaction towards second language production, I now move on to the role of interaction in L1 content classes at primary and secondary levels.

3.4 Interaction in L1 classrooms

With regard to the interaction in L1 classrooms, one known example is *interactive whole class teaching* that was introduced in the nineties as the National Numeracy Strategies (NNS) and National Literacy Strategies (NLS) in the UK (Mroz et al., 2000; English et al., 2002; Hardman et al., 2003; Smith et al., 2004; Myhill, 2006). It aimed to promote learning through dialogue and discussion (Smith et al., 2004) for both the primary sector and the first three years of secondary education. The basic principle underlying this strategy is that talk is important for students' development and that whole class teaching is not a lecturing drill but 'an active teaching model encouraging a two-way process' (Smith et al., 2004: 396). Similarly, learning is not meant as the addition of new information to existing knowledge – it is constructing a model of the world (Barnes, 2008). This construction can take place through interaction and the basic idea of the NLS and NNS is to enhance overall student learning through interaction.

Another idea proposed by Jones and Tanner (2002) with regard to the teaching of mathematics through whole class teaching is that for effective teaching and learning

of mathematics, teachers could use higher order questioning, which requires pupils to think, explain and discuss their own ideas. This process should allow students to have control of their own learning by initiating ideas and promoting their thinking (Mroz et al., 2000). It has been found that when children are able to talk about their understanding they are able to increase their knowledge and improve understanding (Johnson and Johnson, 1990, cited in Hardman et al., 2003). Later, in the last section of this chapter I am going to discuss the similarity of dialogic discourse and dialogic teaching to the ideas expressed in this paragraph. Further, Hardman et al. (2003) explain how the teaching-learning should be in interactive whole class teaching. They state:

One of the most important ways of working on this understanding is through talk, particularly where pupils are given the opportunity to assume greater control over their own learning by initiating ideas and responses which consequently promote articulate thinking. (p. 212)

The basic structure of interactive whole class teaching is one whole class section, one group work section and then a plenary section (Hardman et al., 2003), but this does not need to be rigid. For example, in the early stages of the literacy strategy, the following structure is recommended for whole class teaching: 15 minutes of text level work; 15 minutes of sentence or word level work; group work for 20 minutes and plenary for 10 minutes (ibid).

Criticism of interactive whole class teaching

Those who have investigated this approach claim that teachers who practise this approach have no understanding of the underlying principle or how it should be practised in the classroom in order to bring desirable results. That is, teachers are ill informed of this process and they have not been given practical advice on what interactive whole class teaching is and how it should be used in the classroom (Hardman et al., 2003; Smith et al., 2004). Moreover, the strategy gave teachers

contradictory ideas with regard to whole class interactive teaching (English et al., 2002) because most of the teachers assumed that a higher level of interaction occurs in the form of teachers' questions and students' answers. As a result, teachers' general understanding of interactive whole class teaching is to use questions as much as possible.

This situation has led to further problems. One is that the majority of the questions used by the teachers are either closed or factual questions which did not help students to be involved actively in interaction in the classroom, and therefore the practical value of this approach in terms of the 'linguistic and cognitive demands made on pupils has become a question' (Mroz et al., 2000: 387). Further, interaction, which has become a 'byword for effective teaching, both within the profession and in documentation related to teaching' (Burns and Myhill, 2004: 47) has been measured based on the number of questions raised in the classroom (ibid). But Burns and Myhill argue that using questions as a measure of interactivity is unsuitable as it ignores the value of interactivity available in statements made by teachers, for example. In addition, they warn of the negative effect of more questioning in classrooms. They claim that the more questions the teachers ask the more passive and silent students become.

The resulting outcome of this approach in the classroom is teacher dominance. In other words teachers control knowledge in an 'inflexible authoritative manner' (Burns and Myhill, 2004: 47) and there is little constructive meaning making available from the students. Observations of interactive whole class teaching, therefore, have revealed that teaching tends to be teacher centred with teachers retaining control over the direction and pace of the lesson and the lines of knowledge (Mroz, et al., 2000).

Further, after the introduction of whole class interactive teaching, the reality of the outcome may be traditional whole class teaching.

This brief review indicates that the NLS and NNS did not bring desirable results. Even though there were interactions between teachers and students those interactions followed the teacher dominated IRF (Initiation – Response – Follow-up) pattern. The pattern of interaction is discussed in detail in chapter 5. In this IRF pattern the teacher controls the discourse, leaving no self initiative for students. Therefore, students, despite their involvement in interaction, are not active. Having reviewed whole class interactive teaching at school, now I turn my attention to interaction in tertiary level L1 and L2 content classes.

3.5 Interaction in tertiary level content classes

In this section, initially I review the literature to indicate how interaction in lectures is beneficial for students, mainly based on tertiary level classes. Following this, I review the studies in tertiary level L1 classes and L2 classes.

3.5.1 Interactive vs non-interactive lectures

Though the main purpose of lectures is to transmit information to a large audience (Lake, 2001), the way lectures are conducted can be either teacher centred or student centred. Teacher centred lectures focus on conveying information (Vinke, 1995), while student centred lectures allow for the active participation of students. That is, student centred teaching aims to develop conceptual knowledge by both the lecturer and the students working together (Trigwell et al., 1999).

An advantage of interaction in lectures is it may help to sustain the attention of students for a somewhat longer duration than didactic lectures. Usually in lectures

students' attention goes down after some time. A number of studies have found that students lose concentration at some point between the first 10 and 20 minutes of a lecture (e.g. Stuart and Rutherford 1978; Bauml and Benbassat, 2008; Johnson and Meckelborg, 2009). One way this problem can be overcome is by introducing interactive exchanges in lectures so that students' attention can be sustained. For example, Johnson and Meckelborg (2009) suggest that introducing Student Response System (SRS) in lectures can motivate students to pay attention to lectures. SRS is a technology to throw questions to the whole class and receive answers and display them using technology, while maintaining anonymity. Even though this kind of technology can encourage students to interact in the lectures (not necessarily verbal interaction) whether it enhances the learning is a matter for further study. The value of non-verbal interaction for language development is another question.

It has also been stressed by van Dijk and Jochems (2002), based on a number of other studies, that active learning methods may result in greater retention of material at the end of a class, superior problem-solving skills, more positive attitudes and higher motivation for future learning. Interactive lectures involve students actively in learning so that students can retain the materials learnt for longer (van Dijk et al., 2001), and students who learnt through active engagement in the classroom become motivated and enhanced their performance despite their lack of basic knowledge in the subject (Ernst and Colthorpe, 2007).

On the other hand, the lectures that are conducted as teacher-centred may lack interaction. In those lectures, the lecturers' main motive may be to convey as much information as possible and these lecturers are known as didactic lectures. van Dijk et al. (2001) argue that didactic lecture delivery may have a negative effect on students'

learning. These lectures have also been criticized for not promoting higher order skills such as conceptual understanding, independent learning, and problem solving abilities (Saroyan and Snell, 1997). Teacher centred teaching could be described as ‘note to note’ learning because DiCarlo (2009) explains that in learning ‘too often information is transferred from the notes of one person to the notes of another person without going through the minds of either person’ (p. 259).

In practice interaction has not gained wider acceptance in lectures because lecturers may fear that they may not convey enough content materials to the students if they concentrate on interaction (Lake, 2001). Other than this some other disadvantages of having interaction in lectures are the reduction in accuracy of transmission, student resistance, and loss of control by lecturers over the class (Huxham, 2003). Huxham reports these disadvantages based on several other researchers. Many lecturers are happy with the traditional way of delivering lectures because traditional delivery reflects their belief regarding lecturing, that transmission of information is the function of lectures (van Dijk et al., 2001).

As Murphy and Sharma (2010) state, therefore, ‘interactive elements that might possibly enhance the likelihood of successful student learning need careful examination’ (p. 116). In relation to this quote, the question arises of how interactive an interactive lecture should be. That is, whether the whole lecture should be taught interactively or some phases of the lectures are held interactively. Huxham (2005) suggests that:

Many of the potential disadvantages of interactive methods, such as overcoming student expectations and loss of time and content, are mitigated by incorporating small interactive sessions into traditional lectures, rather than replacing lectures entirely. (p. 29)

I take up this point in the discussion chapter also. According to this brief review, it is indicated that developing the lectures in an interactive manner can benefit students’

learning. Let us now review some studies of interactive lectures in order to examine the benefits claimed in more detail.

3.5.2 Interaction in tertiary level L1 content classes

Ernst and Colthorpe (2007) conducted a study in an Australian university among a group of second year NS (i) physiotherapy, and (ii) speech pathology and occupational therapy students. In 2003, the respiratory lecture was delivered in a didactic way and in 2004 and 2005 this was delivered as interactive lectures. To make lectures interactive they mingled monologic lecture phases with short buzz groups and also conducted whole class discussions. In addition, classroom questions and answers were posted on the web. Students' performance was evaluated at the end of semester examinations. Compared to students' performance in 2003, the results in 2004 and 2005 were significantly better. In the respiratory physiology examinations in 2004 there was a significant increase in students' performance ($P < 0.001$)¹¹ to 68.8% and in 2005 67.8%, compared with 43.8% in 2003 for the cohort ii students. Though this enhancement was also significant ($P < 0.05$) with physiotherapy students who had the background knowledge of the subject, compared to the other cohort the increase is less. The weakest conclusion from this study is interactive lectures have a positive effect on the students who do not have a strong science background, though the researchers fail to explain the exact reason for this. Even though the researchers claimed that they maintained comparability for examinations, course content and teaching staff, the ability of the student groups across the three years varied. However, one advantage of interactive lectures, as indicated by the students'

¹¹ P is significant at <0.05

evaluations, is that interactive lectures made students interested in the subject and motivated them to learn and try to achieve a better outcome.

In another study, presumably among the majority NS students in a UK university, Huxham (2005) provided opportunities for students to interact through ‘interactive windows’. These are times allocated for small buzz groups formed in the class to discuss a question or to solve a problem with their peers. These interactive windows were introduced in the first year lecture series on evolution and continued for five years from 1998. Lectures were evaluated after the fourth lecture in an 11 week lecture series by way of getting students’ feedback on the positive and negative aspects of the lecture and also the changes they expect. In this connection, students were asked to write anonymous, short answers on what they liked, disliked and what changes they expected in the lecture delivery. The responses were collected over a period of five years. Interaction was most frequently reported as a positive aspect of the lectures, followed by explanation and interesting content. In addition, students’ performance in the examinations improved for the topics covered during interactive windows, as was found from the higher proportion of students’ correct answers. But the results were not significant in many cases, and the researcher indicates that future research is needed in this area.

In a study at the Delft University of Technology (DUT), Netherlands among engineering students van Dijk et al. (2001) empirically tested the effect of interactive lectures over traditional lectures and in this study interaction was initiated with technology. Researchers employed two experimental groups and one control group. The control group attended the traditional lectures which did not expect student input in the lesson and in those lectures only a few rhetorical questions were asked. In one

of the experimental groups students used an interactive voting system (IVS)¹², a kind of technology for use in the classroom to interact with the teacher. IVS consists of a series of electronic voting devices that connect the presenter (lecturer) and the audience (students). When the lecturer directs questions, students can answer anonymously using their voting device. The lecturer can then project the answer on the screen. In the other experimental group, in addition to IVS, students were allowed to have peer interaction too. The findings revealed that those students who were exposed to IVS with peer interaction scored significantly higher in the 7 item post-test conducted on the content of the lecture (a mean of 5.23), while the control group was better than the students who used only IVS (4.82 vs 4) because the students who used IVS only were less participatory compared to others and their score was significantly lower. This implies that the use of technology to activate students should be dealt with carefully, though the technology plus face to face interaction was more favourable. Further, van Dijk et al. claim that making students active by face-to-face interaction (e.g. peer discussion or teachers' questions and students' answers) would make students active and may lead to enhanced performance.

In a later study van Dijk and Jochems (2002) investigated the effect of student-centred lectures on engineering students' exam performance, study behaviour and motivation in the same university. Two introductory mechanics courses were selected in the first year (Course II) and in the second year (Course I). For each course both experimental and control groups were formed. The experimental groups were exposed to initially traditional lectures as usually delivered by these lecturers. The next year after training the lecturers to deliver lectures interactively (e.g. incorporating assignments, questions and peer instruction in the lectures) these two groups were

¹² Similar to the Students Response System (SRS), which was described earlier

exposed to interactive lectures. The students' performance in the examinations was evaluated after a year to find the effect of interactive lecturing. In addition, an observation instrument, a student questionnaire and a questionnaire on student self study were used to find the students' performance resulting from interactive lecture delivery. The results revealed that students in the course I experimental group were significantly motivated to attend the interactive course compared to traditional ones (mean value 3.26 vs 2.55), whereas overall motivation for the two groups (experimental and control) of Group II was not significant, but the reason for this was not explained by the researchers. When the examination results were compared there was a significant difference between control and experimental groups. For group I the mean scores were 5.6 vs 6.4 and for group II 6.2 vs 6.6 respectively, when the students' prior subject knowledge were comparable. The researchers conclude that 'students benefit more from lectures they attend when they are actively involved in the learning material during the lectures' (p. 282) due to their interest and higher motivation. But, in their study, the students' enhanced motivation through the active teaching method was limited to lecture classes only, whereas students' self study did not improve.

Compared to the L1 primary and secondary studies that deal with interaction, interaction in tertiary level L1 content classes has not drawn much attention and the few other studies undertaken have focused on medical education (e.g. Goldberg, et al., 2006; Millis et al., 2009). Therefore, now I turn my attention to tertiary level L2 content classes.

3.5.3 Interaction in tertiary level L2 content classes

The notion of interactiveness is often related to the kind of question and answer sessions. For example, Morell (2004) defines interactiveness in lectures based on the number of interventions made by students in the form of questions. Morell (2004) believed that by using interactive lectures, students' comprehension of lectures and communicative abilities could be developed in EFL content lecture classes as a result of her study among the English studies degree students at the University of Alicante, Spain. She found that the lectures which were identified as interactive were found to possess four linguistic features, which she pre-identified, in abundance. They are personal pronouns, discourse markers, questions (teachers'), and negotiation of meaning. These features were identified by her based on other research which suggests that these interpersonal discursive features promote interaction between lecturers and students. As an intervention strategy, she trained the lecturers who had poor interaction to make use of those linguistic features in their lectures, and found that there were more student interventions (student participation) after the use of those features. Despite this enhanced interactiveness in those lectures which were subject to intervention, she claims that increase in the use of linguistic features is the result of interaction but not the cause. But she fails to explain what enhances interaction in those lectures if those linguistic features did not cause it nor did she explain how interaction in the lectures can develop learning and communication.

In another study at B. P. Koirala Institute of Health Sciences, an autonomous university in Nepal, by Kumar (2003), conventional lectures were replaced by 'structured interactive sessions' (SIS), which involved 'an increased interchange between teachers, students, and lecture content' (p. 21). First year dental students were involved in this experimental study that was conducted over 5 days. The class

was divided into two groups and sat separately in the same lecture room, though the purpose of such division is not explicit. Students were allowed to ask questions and were given individual scores for the questions asked and also for answers. Students were given one point for every question asked (relevant to ongoing discussion and learning needs) and two points for every right answer (to a question from the students or teacher). Scores for interactions per student were also calculated and announced each day. In addition, a student feedback questionnaire was given at the end of lectures, presumably at the end of five days. It was found that interaction increased from day 1 to day 5 (for both groups total interactions increased from 5 to 29) and also students evaluated the interactive lectures positively. Despite the positive results for interaction, in this study Kumar did not measure students' performance and empirically correlate it with classroom participation. The reason given by Kumar for this is 'each successive class of students has different abilities' (p. 24). Further, the methodology applied in this study seems not viable as the study lasted for only 5 days. Measuring the question and answer may not truly reflect the real benefits of interaction. Despite its shortcomings, the study reveals that students in this study seem to have responded positively to learning interactively.

In a recent study, Prakash (2010) argues that lecture format has a positive impact on student learning. He experimented with an approach called the 'constructivist lecture' with the second year MBBS students in a Malaysian university. He conducted a series of three lectures, dividing students into two groups. One group listened to didactic lectures with a few exchanges of interaction, while the other one received constructivist lectures on the same topic using a series of logical questions and students' answers. The effectiveness of the lecture was measured using a post-test conducted at the end of the last lecture. His study revealed that when students learnt

in a constructivist manner their learning outcome was enhanced compared to the traditional lecture method as expressed through mean values (6.8 vs 4.2) for the constructivist lectures vs the typical lectures respectively. In addition, in the feedback, students stated that they preferred the constructivist lecture method. Another post-test conducted after 4 months brought similar scores for both groups indicating that students in the traditional lecture also enhance their content knowledge at a later stage. However, it is not clear how other sources of knowledge (e.g. reference or self study), which could have contributed to students' knowledge, were controlled in this study. Otherwise their influence on students' enhanced content knowledge may have influenced the outcome of this study. Further, compared to the previous studies the duration of the experimental study is shorter and the effect on the students' learning cannot be judged through the constructivist lecture.

So far the review of the selected studies has indicated that interaction that occurs in the form of question and answer and/or through technology favours content learning but those studies did not analyse their lecture discourse for their dialogic value. This indicates a gap in this area of research. Moreover, we started with two problems: (i) students' difficulties in content learning and (ii) their limited language proficiency. But the review above has shown us how interaction favours content learning in lectures only, yet we are to focus on the other side of the argument to consider how interaction favours language development. In order for content and language learning, it is argued that the interaction should be dialogic. Therefore, in the next section, I am going to present the theoretical background for dialogic discourse and dialogic teaching to get a better understanding of the concept dialogic, and in the following section I am going to discuss how the dialogic interaction helps language development.

3.6 Dialogic discourse and dialogic teaching

The term dialogic in contemporary classrooms became popular after the study of classroom discourse by Scott (1998) and Mortimer and Scott (2003) in secondary level science classes. In order to identify the interactional episodes of those science classes they used a kind of communicative approach called dialogic, as I discuss in chapter 5. During a similar period, the notion of dialogic as a teaching approach was introduced by Alexander (2006) in L1 content classes. The basic idea of dialogic is preserved in both these perspectives. That is, dialogic refers to mutual and collaborative. It can be a discourse produced by teachers and learners, or a teaching approach which involves students actively. Alexander (2006) regards dialogic teaching as ‘[it] harnesses the power of talk to engage children, stimulate and extend their thinking, and advance their learning and understanding’ (p. 37).

During classroom interaction, the monologic or the dialogic discourse is created. The monologic discourse aims at achieving the teachers’ goals and is largely concerned with transmission of knowledge. On the other hand, the dialogic discourse is made to promote ‘communication through authentic exchanges’ (Lyle, 2008: 225). These dialogic and monologic concepts have a resemblance to teacher-centred and student-centred teaching approaches respectively, proposed by Trigwell et al. (1999). In addition, Lyle (2008) considers these monologic and dialogic talks as ‘binary opposites’ and states that it is the dialogic talk that creates opportunities for multiple voices (p. 225). On the other hand, during monologic discourse ‘children are prevented from developing voice and critical awareness of their own ends, means and capacities in learning’ (p. 227). Usually the teachers’ voice, which is dominant in the

classroom suppresses the students' voice, but I later argue in chapter 7 that both dialogic and monologic discourses are important in a lecture/lesson.

Alexander's dialogic teaching has the same principle as explained by Lyle (2008) and according to Alexander (2006) there are five essential features of dialogic teaching: Dialogic teaching is (i) collective (teacher and learners address learning tasks together); (ii) reciprocal (teacher and learners listen to each other, share ideas and consider alternative view points); (iii) supportive (learners articulate their ideas freely, without fear of embarrassment over 'wrong' answers, and help each other to reach common understanding); (vi) cumulative (teachers and learners build on their own and each other's ideas and chain them into coherent lines of thinking and enquiry); and (v) purposeful (teachers plan and steer classroom talk with specific educational goals in view).

Alexander (2006) argues that in order for better learning the usual classroom recitation, which consists of questions – answers – evaluation, should be transformed into purposeful and productive dialogue. Therefore, roles of questions are important in developing dialogic teaching or dialogic instruction. Nystrand et al. (1997) consider that authentic questions (teacher does not warrant a particular answer) and uptake (teacher incorporates students' answers into subsequent questions) are important. However, the authentic question should be relevant to the topic, and the quality of interaction built around the questions is also important (Skidmore, 2006).

Furthermore, according to Alexander (2006), dialogic teaching is characterised by several constructs. They are: teacher-pupil interaction (questions provoke thoughtful answers and answers provoke further questions); student-student interaction (children build on each others' contributions); teacher-student one-to-one monitoring;

questioning; response to questions; feedback on responses; and student talk. Alexander further explains these constructs of dialogic teaching in detail. In his proposed dialogic teaching, teachers' questions provoke thoughtful answers, the answers provoke further questions, and the individual exchanges between teacher and students as well as students and students are built into coherent lines of inquiry. Not only the teachers, but also the students, ask questions and their mistakes are used as a learning platform. In addition, students encourage each other's participation and build on each other's contributions. Questions in the classroom are based on the content or the context of the lesson and build on previous knowledge and also they challenge thinking and reasoning. The teacher maintains the balance for open-ended questions with guidance and structure to reduce the possibility of error. Importantly, the open questions, Alexander argues, should be authentic without leaving room for guessing and also the teacher should give students time to think. Responses to questions are addressed in depth and answers are extended rather than yes/no or factual recall. In Alexander's view, when the teacher gives feedback he or she should keep the discussion going rather than closing it down and therefore should avoid the usual evaluative comments such as 'good', or 'brilliant'. The feedback should be informative so that students can build on that.

This brief review informs us that dialogic is mutual and collaborative and both teachers and students contribute to dialogic discourse. Based on this dialogic principle, I am going to discuss studies that argue dialogic interaction can be favourable for language development. Later, I will revisit the practical implication of dialogic teaching in primary, secondary and tertiary level classes.

3.7 Interaction and language development

The argument developed in this section is how students could improve their language proficiency while developing subject knowledge in L2 content classes. When the students study in their first language the objective of the classroom discourse is mainly to enhance the students' conceptual knowledge, while the study in the second language (e.g. English medium or immersion context in non English speaking countries) is usually dual focused. One is to enhance the content knowledge of the students, and other one is developing the language proficiency.

We have already seen in section 3.3 that in ESL/EFL classes including CBI classes, studies have proven that interaction between NS lecturers and NNS students favour their comprehension and language development, even though the latter in a limited way. In addition, the studies from an immersion context, a close ally to the present English medium context, consider that it could be a favourable platform for language learning when students are given opportunities to use the language (Swain, 1985, 1995). In a similar vein, it is argued that dialogue could be an enactment of a mental process and an occasion for L2 learning (Swain and Lapkin, 1998). Swain and Lapkin exemplified how the dialogue between two French immersion students in grade 8 classes helped develop their conceptual knowledge as well as language production. They claim that language is both communication and cognitive activity, that speakers use language to communicate and as a tool for thinking, and therefore dialogue provides both the occasion for language learning and the evidence for it. They also showed that students' dialogue served as a tool for both L2 learning and for communicating with each other. Their basic argument was that collaborative dialogue assists in L2 learning. One way this is made possible is by using language as a

mediating tool. Nevertheless, my concern is not dialogue between peers but teacher-student dialogue. Therefore, I am going to review some studies of this nature.

Haneda (2005) explains how teacher-student interaction could help in developing the students' conceptual knowledge as well as language development. Her argument was based on the triadic dialogue I-R-E – Initiation – Response – Evaluation (Lemke, 1990), which occurs in most classrooms. As indicated in Lemke's triadic dialogue, usually in classrooms a teacher's question receives a response from the students, and the teacher evaluates the student's response to end the exchange. This could be followed by another initiation by the teacher. Even though researchers (e.g. Wood, 1992) earlier questioned the usefulness of this triadic dialogue, now it has been realised that these triadic dialogues could be used in a fruitful way by giving a Follow up move (F) instead of an Evaluation move (E) to make meaningful, connected interactional episodes between teacher and students (e.g. Nassaji and Wells, 2000). A detailed discussion on this triadic dialogue is given in chapter 5.

Haneda explains her own study with two other studies to exemplify how the dialogue can be used to develop language in the classroom. Haneda's (2005) study was based on grade three bilingual Spanish students taught by a science content teacher in a United States school. Haneda argues that the triadic dialogue has different purposes depending on the purpose of the lesson. Giving different examples of classroom extracts she exemplifies how the teacher can focus on content and language simultaneously and make the interaction more dialogic. She further argues that irrespective of the type of initiating question, teacher uptake in the follow-up move makes triadic dialogue more dialogic (as claimed by Haneda, 2005) because it gives more opportunities for students to contribute in terms of content and/or language. I

have highlighted the feedback moves in the extract of an episode drawn from Haneda (2005: 323, my emphasis):

- 15 T: [...] What do you think we want to KNOW – if we do that experiment? Think about it
16 Boy: See if they grow
17 T: We want to know if?
18 Ss: [They grow
19 Felipe: [They grow without water
20 T: Say it again Felipe
21 Felipe: They grow without water

In this short extract a teacher question is followed by student answers. The teacher not only expects the students to provide the answer (for content knowledge) but also she appropriates the language. Even though it is claimed by Haneda (2005) that this dialogue is closer to dialogic, in reality it looks more teacher directed interactional exchange. Also, based on the four excerpts presented by Haneda all the questions were asked by the teacher. Nevertheless, these dialogues have many merits too. One is that the teacher creates opportunities for students to speak in the class so that they express their understanding of the content as well as articulate their language production ability. Another fact is that though the teacher uses display questions, students provide extended answers without being limited to one or two words. Though usually display questions bring shorter answers, as I further discuss in chapter 5, these particular display questions are open ended. Even though the students in Haneda's study are ESL students, they participated in the discussion actively, and also as Haneda claims, voluntarily.

Another study that is of interest in the context of teacher-student interaction that appropriates content and language is of Gibbons (2003). The study was conducted in two classes of 9 and 10 year old children in their fifth year of schooling and involves

their two teachers in mainstream science classrooms in an Australian school, where for more than 90% of the students English was a second (or subsequent) language.

Gibbons used mediation and mode, the two constructs from sociocultural theory and systemic functional linguistics respectively, to investigate how the teacher-student interaction in a science classroom contributes to students' language development. Of these, the interest of this study lies in mediation as it involves interaction. Among different tools, language mediates learning through dialogue. Gibbons used the term mediation to indicate how the teachers choose the language in the classroom in her study. It is expected that through language, the teachers raise the students' knowledge to a higher level. The interactional exchanges occurred when the teachers and students tried to recount their experiments to the whole class.

In analysing the discourse Gibbons exemplifies how the teachers used interaction with students to develop their conceptual knowledge. The teacher used the feedback move to request for elaboration (e.g. 'can you explain that again?'), clarification (e.g. 'tell us what you found out') content matters or to nominate students to use appropriate language (e.g. 'now let's/let's start using our scientific language Michelle') (p. 264). In addition, the teacher gives the appropriate linguistic support once the students have got the content knowledge. For example, at the end of an episode the teacher presents:

OK so when . . they were facing one way . . they/ you felt the magnets attract¹³ and stick together/ when you turn one of the magnets around you felt it . repelling . . or pushing away . . OK thank you well done Charbel. (Gibbons, 2003: 260)

In this way, the teachers used language to guide the students' involvement in interaction. Their questions focused on both content and language. For example, in

¹³ The underline indicates the marked emphasis as presented by Gibbons (2003)

the extract below in the third move the teacher asks the students to focus more on science content.

- T: tell us what you found out
Michelle: we found out that the south and the south don't like to stick together
T: **now let's/let's start using our scientific language Michelle**
Michelle: the north and the north repelled each other and the south and the south also repelled each other but when we put the/ when we put the two magnets in a different way they/ they attracted each other. (P. 264)

Similarly, in another exchange the teacher recasts students' utterances to reformulate the language. Though this is a kind of language support extended to the learner, details are not available to indicate whether the students take up the recast.

- Student: you can feel . . . that they're not pushing . . . if we use the other side we can't feel pushing
T: you can feel . . . that they're not pushing . . . if we use the other side we can't feel pushing when they were facing one way you felt the magnets attract and stick together when you turn one of the magnets around you felt it repelling or pushing away. (p. 256)

In this way, Gibbons explains that the teacher, by providing support (or scaffolding), assists students to produce the language and also to use an appropriate academic register when they speak. Nevertheless, it may not be an easy task for a content teacher to decide the present linguistic level of the learner and support him to reach the target language, while developing his content knowledge. This may need training, as Gibbons also suggests. In addition, whether the preference should be given to scientific language over everyday language is also a question because learners who feel uncomfortable with general language proficiency may not be able to master the scientific language (or ESP) either (Lu and Julien, 2001).

In another experimental longitudinal study with ESL students in grade 4 mainstream classrooms in a Californian school, Haneda and Wells (2010) report two years (2004 and 2006) of a long running study (2003 to 2007). Each year ESL (or ELL – English Language Learners) students were asked to be involved in a project (i.e. making a

vehicle) and shared their experience with the teachers. The classroom discussions were recorded and transcribed with a focus on the IRF discussion format between the teacher and the students. The discussions were conducted in the IRF pattern when students' responses received teachers' follow-up.

Based on their findings, Haneda and Wells claim that the classroom discourse was both interactive and dialogic. They call the discourse interactive when the teacher and the students are involved in interaction, while for dialogic discourse the teacher asks more open-ended, continuing or follow-up questions and indicates to the students that he or she is interested in students' views for the construction of the lesson. In addition, there was uptake of students' contributions too. The teacher built on students' contribution by means of asking explicit questions or through implicit comment. In both ways, the teacher encouraged students to contribute to the discourse. In addition, they claim that students' answers were not simple (of one or two words) but in both years 60% of the answers were explanatory in nature (predict, conjecture, explain, and conclude). For example, in the extract below a student explains why his car travelled a longer distance. Here he not only explains the scientific reasons but also uses language with longer exchanges so that the opportunities for output enable language learning as Swain (1995) claims.

Jerry: Well, er- . this is my theory of why weight helps when you're on the asphalt-

T: What do you mean, theory?

Jerry: My theory' like- well it's not really xxx but it's like weight- why weight causes [the car to go further on] the asphalt- . cos the asphalt has little bumps which xxx - the little bumps make the cars go UP a little bit and that slows them down . but with weight . um it keeps the car um . going to- going THROUGH the <bumps> like the bumps aren't even there. (Haneda and Wells, 2010: 16, original emphasis)

Production of longer exchanges, however, was not always present in the discourse.

Even though Haneda and Wells claim that the whole class discussion, organised

dialogically, could provide an environment suitable for ELLs who contribute to the discussion without any fear or hesitation and develop their content knowledge as well as language, the students' responses as shown in the extract below come as one to one recitation without self initiative. Nevertheless, one cannot reject the value of this either because these students are ESL students and English is not their mother tongue. Yet they are eagerly participating in classroom discussions.

- T: (Reads) "I was watching the skaters doing some amazing tricks and manoeuvres. while I was watching I noticed that when the skaters went down the ramp on their boards some seemed to go faster than others . I started wondering about some things". this reminds me of your cars . some of them went down faster– it reminds me of the balls that we rolled– some of them went faster than the others.
- Ss : [many speak at once, wanting to offer their ideas]
- T: Well hold on . let me just see what her questions are first and then go with you guys
- T : (Reads) "Number one. some skaters– Why– why did SOME skaters seem to go faster than others?" Do you guys want to take that one on?
- Ss : [many speak at once]
- Jose: The material
- T: What material?
- Luc: The wheels
- T: The material of the board or the wheels?
- Luc: The wheels
- T: Are all skateboard wheels the same?
- Ss: No [several speak at once]
- T: Were there any reasons you guys thought that some skaters go faster than others?
- Mario: **** [inaudible]
- T: The material the skateboard's made out of . OK Siryama [...] (Haneda and Wells, 2010: 18, original emphasis)

Based on another study, Dong (2002) argues that content area teacher can modify their teaching to facilitate the ESL students in their content classes. That is, he argues that both content and language learning can be integrated. He conducted a study in New York City high schools with majority ESL student population. Selecting three teachers he observed each of the three teachers once a week between 1997 and 1998 and recorded their classes. In addition, the teachers and the selected students were interviewed. From this study, a finding relevant to the present study was that both content and language instruction could be combined. The teachers involved in this study adopted different strategies to facilitate the students' content and language development. One important factor was that they commenced the lessons from known

content knowledge and guided the students through the lessons, because students may have brought good content knowledge from schools even though their language knowledge was limited.

In the example below from Dong, a teacher commences his class with a question and students respond or ask further questions.

Teacher: Okay we have two beakers of water up here and one has a rock and one has some beans. OK, if I leave these things alone, say for one day, I come back and look at them tomorrow, how will they change?

Student 1: The bean will grow.

Teacher: Possibly the bean might grow some roots.

Student 2: The rock might get weaker.

Student 3: What happen to it?

Teacher: The rock? So if this was in a river, right, rocks sitting on the bottom of the river. Would the rock be breaking up?

Student 3: No.

Teacher: That is because that water is moving, this water is not moving. What happens to beans when you leave it in water?

Student 4: It gets soft.

Teacher: It gets what?

Student 4: Soft.

Teacher: Did everybody hear that? Say it again.

Student 4: The bean gets soft. (Dong, 2002: 46)

In this example, the teacher sets the context for the study to teach the scientific concept osmosis. In addition, Dong quotes another example in which the teacher explains the vocabulary, modified or elaborated definitions of the new words, to create a mental picture of the meaning. In this way, the teacher tries to provide comprehensible input to the learner.

The studies reviewed above indicate that content teachers have a great opportunity to develop the content and language knowledge of the students. Even though most of the studies reviewed in this section refer to the NNS students who study along with NS students taught by NS teachers at primary and secondary levels, the studies that were conducted in tertiary level content classes for NNS students who learn in an L2 are limited in number. I explained one such study by Morell (2004) earlier, but Morell did

not explain how the interaction can assist language development. Neither did she analyse discourse level details. One way the content and language can be developed is by making connections between their background knowledge and guiding them through academic discourse. This can be done through dialogic interaction by asking relevant questions, expanding their contribution and also providing direct instruction (Hall, 2000).

Having discussed a few studies that argue that dialogic interaction can favour content as well as language development, finally I focus on the practical implications of practising dialogic teaching in primary, secondary and tertiary classes.

3.8 Practical implications of dialogic teaching

3.8.1 At primary and secondary classes

Dialogic teaching, according to Alexander (2006), can be used to replace interactive whole class teaching in which we earlier found that interaction tends to take an authoritative tone with the ‘recitation script’ (Tharp and Gallimore, 1988) in which one to one question and answer sequences exist. That is, the usefulness of such interactional exchanges towards the cognitive development of students has been called into question. The evidence collected from studies that investigated interactive whole class teaching has shown that traditional teacher centred practices predominate (Lyle, 2008). Even though it has been accepted that the quality of classroom dialogue is important to ensure that children get the most benefit from schools (Mercer and Dawes, 2008), the lack of knowledge among teachers and teacher trainers can affect the practice of dialogic teaching in the classroom.

The idea of dialogic teaching, initiated by Alexander (2006), has drawn the attention of many local schools in England, Wales, and Scotland. These schools have started initiatives to practise dialogic teaching, while the international interest is also growing. One such known project in the UK is ‘Dialogic Teaching in Science Classrooms’ research project, funded by the ESRC (The Economic and Social Research Council), based at the Open University and the University of Leeds. An evaluation of dialogic teaching in participating UK schools revealed that students, through the use of authoritative and dialogic episodes, demonstrate their knowledge and understanding, guided by the teacher. This is managed through peer discussion, group activity and plenary, etc. (Mercer, 2007). However, Mercer warns that practising dialogic teaching is not easy because it involves more teacher expertise rather than the students’ cooperation.

When Mercer explains that practising dialogic teaching is not easy, Aguiar et al. (2009) also explain the difficulties of a Brazilian high school physics teacher who uses the dialogic approach to teach students. In his classroom he opened the discussion with a challenging question and welcome students’ views to build the lesson. The teacher used the empirical and theoretical knowledge in the lesson which is similar to dialogic and authoritative episodes of Mortimer and Scott. However, the students’ did not answer the teachers’ questions satisfactorily, so this it implies that practising dialogic teaching is not easy.

Similarly, Alexander (2006) also reports that there are more favourable changes, including more talk (teacher and students), more questions, more answers, and longer interactions, and more students’ thinking and contribution as a result of dialogic teaching in the schools in the North Yorkshire, and the London Borough of Barking

and Dagenham. However, he is sceptical that this can be seen as evidence of success and suggests it is too early to claim that these changes are occurring as a result of dialogic teaching rather than some other factors being responsible.

The dialogic teaching which was trialled in some parts of the Britain as mentioned previously, 'is now incorporated into professional support materials from QCA (Qualification and Curriculum Authority) and the UK government's Primary and KS3 strategies' (Wolfe and Alexander, 2008), but reports carrying very recent developments are yet to appear. Further, Wolfe and Alexander report that the introduction of the strategy has widened the gap between the teachers who practised dialogic teaching and continued to make changes for the benefit of students and those who do not. It is also alleged that children are not exposed to the required repertoire of vocabulary so that their ability to contribute to the classroom discourse is limited. For example, children are unable to narrate, explain, ask questions, speculate, argue, etc. without sufficient knowledge of the vocabulary. Therefore, as the subsequent studies reveal more training, and input is needed to make dialogic teaching a success.

3.8.2 At tertiary level

Dialogic teaching which began in primary and the secondary level classrooms is now being considered as a teaching approach at tertiary level but in a very limited way. The ESERA (European Science Education Research Association) has published a few conference papers on dialogic teaching of which one study comes from the tertiary level by Pedrosa de Jesus and da Silva Lopes (2009), while another published article appears in 2011 (Pedrosa de Jesus and da Silva Lopes, 2011) but these studies were conducted in L1 contexts. Even though there is another recent study (Mesa and Chang, 2010) conducted among American college students learning mathematics, that

study is built on the concept of Bakhtin's/Voloshinov's notions of dialogism and heteroglossia. The present study deals with the more contemporary work of SCT and the dialogic approach to teaching, and also gives a different interpretation for dialogic interaction as explained in the introduction chapter.

In the tertiary level study Pedrosa de Jesus and da Silva Lopes (2009) investigated Biology undergraduates and their four lecturers in a Portuguese university in the year 2007/2008. Their objective was to investigate the relationship between the teaching approaches and students' questioning pattern. The teaching approaches were identified using the teaching inventory developed by Trigwell et al. (2005). They analysed 12 transcribed lectures out of the 40 observed lecture sessions of the first year students and identified the questioning moves as dialogic and non-dialogic¹⁴ based on Mortimer and Scott (2003). It was found that lecturers who adopted a student focused approach asked questions to maintain longer interactional exchanges (dialogic), in contrast the teachers who adopted a teacher-focused approach had longer monologues with fewer interactions. Hence, in each category two lecturers were found. Even though in this study it was found that when the lecturers adopted a dialogic approach there were more student questions, on the whole students asked only a few questions.

In a follow-up study reported in 2011, the same lecturers' lectures were recorded and analysed when they delivered lectures to the third year students and master's students (year 2009/2010) after the lecturers were exposed to an intervention strategy to enhance interaction during the academic year 2008/2009. The latest study considered

¹⁴ In fact Mortimer and Scott used dialogic and authoritative categories instead of dialogic vs non-dialogic as we can see in chapter 5.

two research questions: (i) whether the lecturers changed their teaching approach and questioning pattern over the years when they taught for undergraduate students and (ii) whether the teaching approach changes when lecturing to master's students. Four undergraduate level and two master's level lectures were observed for each of the four lecturers, of those observed lectures two undergraduate and one master's level lectures were transcribed. It was revealed that the teaching approach of the teachers remained the same over the years, when they taught to undergraduate students. In addition, the lecturers' teaching approach did not change, even though there were slight changes in the questioning pattern – an increased dialogic reaction for all four lecturers (less self-answering and encouraging questions). At master's level also the teaching approach remained the same but compared to undergraduates there were fewer questions asked, mainly by teacher-focused lecturers. Hence, the researchers state that due to the low number of lectures observed at master's level a clear relationship could not be arrived at between questioning pattern and teaching approach.

Despite the fact that there are contextual differences between these studies and the present study that may influence the students' ability to participate in classroom interaction – conducted in L1 and L2 contexts respectively, a useful outcome of these studies to the present study is that the lecturers who focus on student centred teaching develop dialogic interaction which helps students' content learning. Hence, in the present study in the L2 context dialogic interaction is considered for its benefit in content and language learning.

In the present study also the observation reveals that most of the questions were asked by the lecturers and students asked only very few. However, it is too early to make

any claims with very few studies and the need arises to focus attention in this area of research in the future to explore the lecturer-student interaction for its potential benefits in content classes.

3.8.3 Problems with dialogic teaching

Even though dialogic teaching has been introduced with a view to adding value to interaction in classrooms, mainly to enhance the meaningful participation of students, it has many constraints too. One is the demands it places on the teacher (Lyle, 2008). A comprehensive knowledge of dialogic and monologic teaching, their strategies and practicality are needed for a teacher who tries to embark on dialogic teaching. Also the teachers engaged in dialogic teaching should consider the affective conditions for learning when planning the dialogic approach (Skidmore, 2006). One such condition would be the larger class size. When the class size is larger the time needed to interact with all the students will be higher and teachers may find difficulty spending such a long time in interaction. Another one could be a drive for higher examination results. Skidmore criticises the current educational system, claiming that current assessment practices promote competition for better results and therefore dialogic pedagogy is changed into mere drilling to achieve higher results. Alexander (2006) himself considers that dialogic teaching is challenging because it not only involves asking questions, but also the teachers should be able to ask appropriate questions to bridge the present knowledge and the target knowledge of the students. Therefore, proper training for the teachers and dedication of the teachers may be necessary for the success of dialogic teaching.

The general problems with developing interaction in lectures can also affect dialogic teaching. For dialogic teaching, the teacher and students should work together and

contribute towards the construction of the lesson. Moreover, dialogic teaching in practice so far has been in school level classes with small class sizes, this makes it possible for teachers to interact with the majority of the participants. On the other hand, larger class sizes may not allow effective dialogic teaching; rather lecturers should turn to alternative approaches in those classes, such as the use of technology or small group discussions.

Another constraint is lack of time, as mentioned in the sub section on interactive lectures in chapter 3. When lecturers spend time interacting with students, they fear that they will not find time to complete the syllabi and therefore, proper planning may be needed to decide which areas need dialogic teaching. Because in a lesson all parts of the lesson cannot be taught interactively (dialogic delivery) but certain sections should be delivered as monologic too, as I discuss in the discussion chapter. It is up to the teachers' knowledge to decide on the interactive/monologic delivery. Nevertheless, Lyle (2008) claims that dialogic pedagogy is still premature. She states that '[t]he full implication of introducing dialogic pedagogies in the classroom needs to be explored' (p. 236).

Even though Alexander characterizes dialogic teaching as giving equal importance to student-student interaction and student initiated questions, in practice it would be a challenge for the lecturers to involve students as active participants in a context like mine, as well as in several other contexts in Sri Lanka. As the initial analysis of the data revealed, students rarely initiated questions in the FAS lectures. In addition, there was no observable student-student interaction (peer interaction) in the observed classes, even though this study does not focus on peer interaction.

3.9 Chapter summary

In this literature review chapter, I have developed an argument that through lecturer-student interaction, there is a possibility of improving the lecture comprehension as well as, in an L2 situation, promoting language development. More importantly when the interaction occurs as dialogic the benefits seem to be more favourable. In order to substantiate my argument, I reviewed the studies on lecture comprehension, and interaction in ESL, immersion and CBI classes, and also L1 and L2 content classes. In addition, I explained the notion of dialogic teaching and also showed that there are gaps in the interactional/dialogic studies in tertiary level L2 content classes. Even though the review supports the claim that interaction in ESL or content classes has the benefit of developing content knowledge and also language, this assertion needs further support from studies in a variety of contexts including Sri Lanka, and this study may be able to contribute to this claim, though on a small scale.

CHAPTER 4 – METHODOLOGY

4.1 Introduction

In the last chapter, I reviewed studies pertaining to lecture comprehension and lecturer-student interaction in order to strengthen the argument developed in the thesis. It was pointed out that dialogic interaction can be suggested as a potential measure to overcome tertiary level students' lecture comprehension problems and limited oral skills in a country like Sri Lanka, where EMI is in practice. Therefore, there is a need to investigate students' lecture comprehension and lecturer-student interaction from the perception point of view as well as to observe the practice in order to investigate the existing situation and also to make suggestions to improve the situation.

The methodology is structured in two chapters. In this chapter, I am going to suggest Mixed Methods Research (MMR) as the overall research design to investigate the perception and practice with regard to lecture comprehension and lecturer-student interaction, while the next chapter deals specifically with the development of an analytical framework. The next chapter, 'Towards an analytical framework', introduces the reader to discourse analysis at tertiary level with an emphasis on Exchange Structure Analysis (ESA) and leads to the development of an analytical framework in order to analyse the FAS lecture discourse, which covers the pattern of overall lecture discourse, pattern of interactional episodes and lecturers' questions.

With regard to the organisation of the chapter, initially, I discuss why a mixed methods approach is suitable for the study and explain its theoretical perspective. In addition, the different research methods used under the mixed methods approach are also discussed with their relative merits and demerits. Finally, I deal with the

limitations of the study and other validity and reliability issues, including ethical considerations.

4.2 Deciding on the overall research methodology

The argument developed in this thesis is that lecturer-student interaction is beneficial for students' content as well as language learning, and therefore the investigation should focus on the occurrence of lecturer-student interaction, students' ability to understand the lectures, and the factors that influence students' interaction and lecture comprehension. For these reasons, classroom observations and interviews are the main research instruments in this study. They allow for the investigation of lecturer-student interaction and its influencing factors in lecture classes, and ensure that preference can be given to qualitative measures in this study. Nevertheless, the proposed methodology needs to incorporate quantitative measures too when it comes to investigating the perceptions of the students as well as the lecturers. In this study, which is exploratory in nature, students' lecture comprehension and students' ability to interact are measured based on the perception of both the students and the lecturers. For this purpose, a questionnaire survey can be considered suitable to investigate the perceptions. Therefore, in the basic research design there is a need for both qualitative and quantitative research methods.

Both quantitative and qualitative measures have their own advantages as well as disadvantages. An advantage of qualitative research is it can give in-depth details of a particular problem or phenomenon, but it is often criticised as findings from qualitative research cannot be generalised to a larger population, unlike quantitative research. Qualitative study concentrates on in-depth details of a small number of cases but the generalisation of the findings is usually sacrificed (Silverman, 2005). On the

other hand, the findings of quantitative methods can be generalisable but fail to study the nature of the problem in depth. One way to overcome these problems is to combine both quantitative and qualitative methods within a single study. I am going to identify this research as Mixed Methods Research (MMR) in the next section.

Before I explain why a MMR approach is suitable for this study and what different methods can be accommodated within the MMR design, I am going to briefly explain the epistemological background of MMR.

4.3 Different research approaches

Even though all forms of research and inquiry have a unique way of understanding a particular phenomenon, with the growth of knowledge, and with the development of different schools of thought, different research approaches have appeared. Of these, two approaches have emerged as popular and have been treated as the dichotomy of research. They are quantitative on the one hand and qualitative approaches at the other. This kind of division between qualitative and quantitative research is seen as a paradigm war (Muijs, 2004). Nevertheless, since the 1990s there has been a change in attitude and in fact the qualitative and quantitative dichotomy is considered on the wane or even a false one (Ridenour and Newman, 2008). In addition, it can be asserted that the ‘frontier between qualitative and quantitative research does not need to be quite so impenetrable’ (Kelle and Erzberger, 2000: 172). Researchers have started to step into each other’s territory and look for new platforms that combine both qualitative and quantitative approaches in an effective way to bring better outcomes for the research studies undertaken. It is also considered that the use of a single method is a threat to the advancement of social science (Onwuegbuzie and Leech, 2005b). This has resulted in the emergence of a new approach called mixed

methods that combines both qualitative and quantitative research in a single study (Creswell, 2003; Maxwell and Loomis, 2003).

In reality, therefore, much of the research carried out in present day contexts is not embarked on with either a qualitative or quantitative orientation alone but has a multi-strategy approach (Bryman, 2004), multiple methods (Silverman, 2005), and is known as the mixed methods approach (Creswell, 2003). Ridenour and Newman (2008) believe that qualitative and quantitative approaches are compatible and the mixed method approach could be a suitable model in between these two. The recently originated mixed methods research (MMR) has become a dominant methodological tool in the social and behavioural sciences during the 21st century (Tashakkori and Teddlie, 2003) and is considered a natural complement to traditional qualitative and quantitative research (Johnson and Onwuegbuzie, 2004) and as an emerging alternative to the rivalry between qualitative and quantitative traditions (Ko, 2010).

4.4 Epistemological background of research approaches

Muijs (2004) explains the basic difference between quantitative and qualitative research; the differences are linked to the different underlying ‘philosophies’ and ‘worldviews’ (or epistemologies) of the researchers (p. 4). Quantitative research is governed by ‘realist’ or ‘positivist’ paradigms, while qualitative research is regarded as a ‘subjectivist’ (ibid) or interpretivist paradigm. The quantitative researcher carries out research in a detached manner from the context and minimises his or her involvement with the research. The outcome of this research is known as objective findings, which contrast with the subjective findings of qualitative research. In other words, in qualitative research the researcher gets closer to the study context and

interprets the case under study. Therefore, the qualitative research belongs to the interpretivist paradigm.

On the other hand, some researchers claim that the positivist and interpretivist dichotomy is not helpful in getting the most out of the research approaches. For example, Onwuegbuzie and Leech (2005a) state that ‘uni-research is a threat to the advancement of the social and behavioural sciences’ (p. 269). Therefore, without the usual quantitative and qualitative juxtaposition of positivism and interpretivism respectively, the mixed method approach, which is cradled in pragmatism, can be an alternative.

The pragmatic paradigm joins the existing two paradigms: positivist (quantitative) and interpretivist (qualitative) paradigms. This new paradigm leads to the mixed methods approach to research. Pragmatism is considered as a third research paradigm as well as an ‘attractive philosophical partner for mixed methods research’ and also it provides a framework for designing and conducting mixed methods research (Johnson and Onwuegbuzie, 2004: 14). Moreover, pragmatism acts in between qualitative and quantitative perspectives and carries the ideas from these two research disciplines (Johnson et al., 2007). Pragmatism acts as a catalyst for both the qualitative and quantitative theories and falsifies the incommensurability thesis (or incompatibility thesis).

4.5 Rationale for using mixed methods approach

When the two major research paradigms: positivism and interpretivism are reviewed what becomes clear is positivism prescribes a scientific approach through empirical testing, while the interpretivist paradigm is built on the researcher’s own interpretation and or reconstruction of subjective meaning (Bailey, 1997). I believe

that each research approach and its underlying paradigms have their own merit, and one cannot treat one paradigm as superior to the other.

Moreover, the objective of the research should match the principles of the research paradigm. In this study, the objective of the research is to identify the nature and extent of the problems of students in understanding lectures and their difficulties in lecturer-student interaction. To accomplish these objectives an approach is needed in which not only the participants' (e.g. students and lecturers) views are collected using a survey, for example, but also data should be collected through direct observation of practice. That is, a mixture of methods may be beneficial, rather than selecting one particular method. Therefore, a mixed methods research approach is preferable for its 'methodological eclecticism' so that the most appropriate form of quantitative and qualitative methods can be combined in order to investigate the problem (Tashakkori and Teddlie, 2010: 9).

Another reason for choosing MMR as the methodological approach in this study is that with mixed methods research a problem can be investigated in more depth, as the researchers are able to use multiple research tools (e.g. survey or interview) at different stages of the research (e.g. data collection, data interpretation) (Johnson and Onwuegbuzie, 2004) rather than limiting themselves to either qualitative or quantitative methods (Creswell and Plano Clark, 2011).

Another advantage of MMR is triangulation. Triangulation can help the researcher to validate or crosscheck the findings from one method using findings from another method. In addition, as we saw earlier complementarity is made possible through MMR, which allows one method to complement another one. That is, the combination of qualitative data with quantitative can overcome the problem that qualitative data

cannot be generalisable, and that quantitative study cannot give an in-depth explanation of the problems or concepts (Onwuegbuzie and Leech, 2005b). In other words, the ‘combination is likely to result in complementary strengths and nonoverlapping weaknesses’ (Johnson and Onwuegbuzie, 2004: 18).

Similarly, when different methods are mixed it is argued that the ‘limitation of one method can be offset by the strengths of the other method, and the combination of quantitative and qualitative data provide a more complete understanding of the research problem than either approach by itself’ (Creswell and Plano Clark, 2011: 8). In addition, any biases in a particular method can be overcome with the other method (Creswell, 2003). Similarly, one can utilise the strengths of two or more approaches by combining them, while reducing the weaknesses of the overall approach (Onwuegbuzie and Johnson, 2006; Tashakkori and Teddlie, 2010).

4.6 Establishing research methods within an overall mixed methods design

In this section, initially I am going to decide what research methods are suitable for an MMR study and at the next stage I am going to explain how different methods can be arranged in a logical meaningful order in an overall MMR design to bring out the best results in the study.

4.6.1 Selecting different methods for the main study

Having selected MMR as the suitable research approach for the study, next it was necessary to decide on the suitable methods for the study. Of course, the selection of research methods depends on what the research questions are. In this respect, the research questions given in chapter 1 can be categorised based on their focus. They are investigating the perceptions, the practice, or analysing the lecturer-student

interaction. Depending on the purpose of the research questions the research methods vary. For example, to find out about perception a questionnaire survey is more useful. But it is not the only method to investigate the perception. An interview also can be used to collect data on perception. Therefore, under the mixed methods design both questionnaire survey and interviews can be employed. Using questionnaire surveys both facts and perceptions can be collected. So in this study it was decided to administer student and lecturer questionnaire surveys. However, in order to identify the practice observation is more effective. Using observation one can collect first-hand information on the problem under investigation and it can therefore be considered more reliable (Bryman, 2004). In addition, interviews were held with both the students and the lecturers. In interviews facts and opinions can also be collected and there is a possibility of verifying or crosschecking the results, while these may not be possible in a survey. The merits and demerits of these individual methods are described later in this chapter.

Table 4.1 below explains how the qualitative and quantitative methods were used in the overall MMR design of the current study. In stage 1, two kinds of questionnaire surveys were administered: students and lecturers. Although findings from questionnaire surveys can be crosschecked using data from classroom observations (stage 2), in reality stage 2 commenced before stage 1, as I explain in the next section. However, any further confirmation, clarifications, or explanation for disparity between perception and practice could be dealt with at stage 3. Stage 3 acts as a reinforcing stage for stages 1 and 2. At stage 3, group interviews were chosen for the students, whereas semi structured interviews were conducted with lecturers. To explore a problem within a group, a group interview is more suitable compared to individual interviews. Therefore, the main research methods were as follows:

questionnaire survey, classroom observation, group interviews and individual interviews. In addition, the researcher's field notes, classroom observation schedule and checklist on lecture delivery style were also used as supplementary tools to collect data.

Table 4.1: Research methods used in the main study to address different research questions

Stages	Research Method		Research orientation	Focus of the method	Research questions focused
	With students	With lecturers			
Stage 1	Student questionnaire survey	Lecturer questionnaire survey	Quantitative	Perceptions (including problems and suggestions)	Research Question 1: sub questions 1.1 & 1.2 Research Question 2: sub questions 2.1 & 2.2 Research Question 3: sub questions 3.1 & 3.2
Stage 2	Classroom observation (use of classroom observation schedule and checklist on lecturer delivery)		Qualitative	Practice / behaviour	Research Question 2: sub question 2.2 Research Question 4: sub questions 4.1, 4.2 & 4.3
Stage 3	Group interview / Informal chat (Researcher's field note)	Semi structured interview/ Informal chat (Researcher's field note)	Qualitative	Views/explanations (clarified/ reflected)	Research Question 1: sub questions 1.1 & 1.2 Research Question 2: sub questions 2.1 & 2.2 Research Question 3: sub questions 3.1 & 3.2
Stage 4	Recording and transcribing of lecture delivery (Lecture discourse analysis)		Qualitative	Interactional exchanges (including questions and answers)	Research Question 4: sub questions 4.1, 4.2 & 4.3

Stage 4 acts as an important stage for the study as it deals with lecture discourse. The recording and transcribing of classroom discourse and its analysis will provide an enhancement to the validity of MMR. The discussion on lecture discourse is given in the next chapter (chapter 5), which deals with transcribed lecture discourse and the analysis based on it. Due to its importance in this study a whole chapter is dedicated for it.

4.6.2 Deciding the overall MMR design

Having selected different methods under MMR design, I am going to discuss how the different methods are going to be structured within the overall MMR design. The main reason for the preference of MMR in this study is its pluralistic as well as eclectic approach to investigating and interpreting a problem (Johnson and Onwuegbuzie, 2004), as mentioned earlier. MMR uses not only a variety of methods but also those methods used are more appropriate to studying the problem under investigation. In addition, the paradigm or world view assigned to MMR, such as pragmatism, enables the researcher to obtain multiple views, not assigning them to either qualitative or quantitative research (Creswell and Plano Clark, 2011).

Creswell and Plano Clark (2011) describe different characteristics of MMR. In MMR the researcher collects and mixes both forms of qualitative and quantitative data and also gives priority to one or both forms of data and combines the procedures into a specific research design. More than the benefits arising from mixing the methods, a decision to select an approach is dependent on three considerations, according to Creswell (2003). They are: (i) the match between problem and approach (ii) personal experience and (iii) audience. Of these three, I consider the first criterion gives an explanation for my choice for a mixed methods approach. Through mixed methods, a researcher can survey a large number of samples and later follow up with a few of them to get in depth detail of the problems under investigation (ibid). This is what I am trying to do in this study by selecting the mixed methods approach; survey a batch of second year students and select a few of them and collect data through interview, while observing the second year classes, selecting and interviewing a few lecturers.

In designing a mixed methods approach deciding on the typology is also important because the typology provides a clear design to carry out the research (Teddlie and Tashakkori, 2009). The major decision to make is how to use and prioritise the qualitative and quantitative components. In connection with this the two major decisions to be made are: (a) whether the researcher gives priority to one method or treats both equally and (b) whether the research phases are conducted concurrently or sequentially (Johnson and Onwuegbuzie, 2004). Of the different designs in which the data collection can be done in an MMR, the prominent ones are: (i) Dominant-less dominant design and (ii) Equivalent status design (Tashakkori and Teddlie, 2008). In the dominant-less dominant one either qualitative or quantitative approaches take the dominant role. In addition they can be carried out either in sequence or parallel. In a sequence model either qualitative or quantitative take precedence. Likewise, in the equivalent status design both qualitative and quantitative methods carry equal status and they also can be carried out either in sequence or parallel. This parallel design is also known as concurrent design (Creswell, 2003; Johnson and Onwuegbuzie, 2004; Teddlie and Tashakkori, 2009).

Creswell (2003) further explains six major mixed methods approaches based on those four factors. Of which the present study matches the concurrent triangulation strategy. In this strategy, the data collection is done concurrently, and even though it is claimed that both quantitative and qualitative methods carry equal status, in practical application priority may be given to either qualitative or quantitative approaches (ibid). The findings from these two methods are integrated during the interpretation phase.

In the present study also, both qualitative and quantitative methods were employed as mentioned earlier. As a qualitative method, classroom observation was carried out throughout the data collection period and student group interviews and lecturer interviews were conducted. As a quantitative method, student and lecturer questionnaire surveys were conducted in parallel with classroom observation. The integration of data occurs at the data interpretation stage, which is also known as data triangulation. The questionnaire data can be crosschecked with observation data, while any clarification in the observation can be done at interview. Therefore, my research design can be identified as the '*Concurrent Triangulation Strategy*' (Creswell, 2003). Similar concurrent designs are explained by Johnson and Onwuegbuzie (2004) and Teddlie and Tashakkori (2009). Figure 4.1 below illustrates the research design. In the concurrent method two strands of quantitative and qualitative data collection and analysis are undertaken and integration is done at the data interpretation stage. In this study I give more weight to qualitative data, because the key findings come from the classroom observation. I, therefore, commenced with the classroom observation which continued throughout the data collection period. Later questionnaire surveys were conducted for students and lecturers, at that time I had firsthand information of the classroom practice. By the time I approached them for interview, I could verify both their perception obtained through survey and the practice observed in the classroom. In this way, I had the advantage of crosschecking the findings.

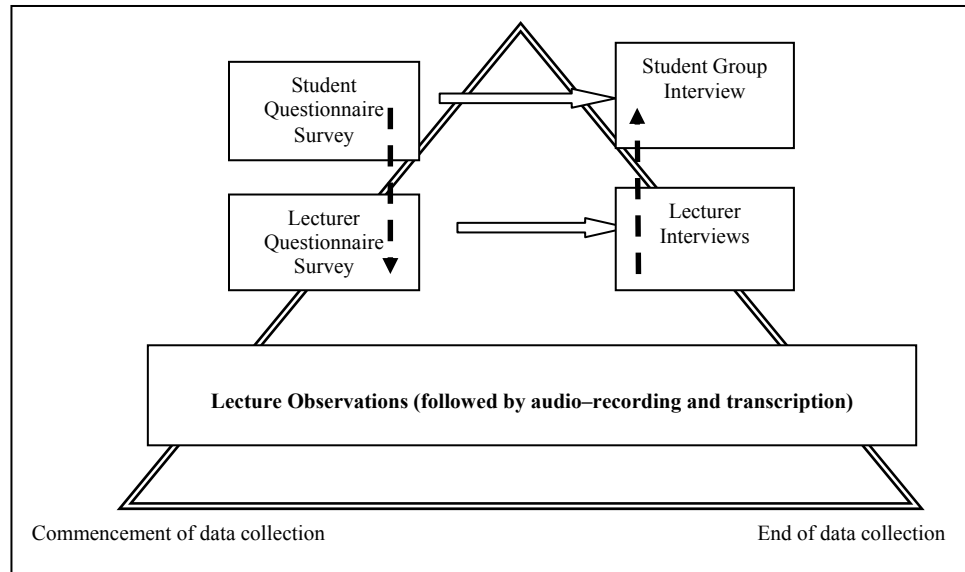


Figure 4.1: MMR design of the present study

4.7 Validity, reliability and generalisability of the study

It is considered that validity and reliability issues are associated with quantitative studies, while another set of criteria such as trustworthiness, authenticity, and credibility are associated with qualitative studies (Creswell, 2003). However, this study is based on the MMR design, and the conceptualisation of validity has been a problem in MMR to date (Dellinger and Leech, 2007; Leech et al., 2010).

4.7.1 Validity

The earlier notion of ensuring validity in mixed methods research is through triangulation. Triangulation is achieved through adopting different methods to collect data on the same issue and corroborating the findings or integrating the findings. For example, in this study, which is identified as a concurrent triangulation strategy, data from the questionnaire survey is corroborated with data from interviews and group interviews and this overall data is crosschecked with the lecture observations. With

triangulation a researcher can confirm or cross-validate the findings within a single study by using two different methods (Creswell, 2003).

On the other hand, another set of arguments that is increasingly voiced is that the validity issues in MMR should not be limited to triangulation or corroboration (Onwuegbuzie and Johnson, 2006), rather the strengths of the qualitative and quantitative methods should be considered in a combined design. Even though the term validity is mostly welcome in quantitative research it does not have such a place among qualitative researchers and therefore it is suggested that in MMR the term 'legitimation' may have the function of validity (ibid). It was also assumed that both qualitative and quantitative researchers may accept this term (Onwuegbuzie and Johnson, 2006).

Onwuegbuzie and Johnson have suggested 9 types of legitimation as shown in table 4.2 such as sample integration legitimation, inside-outside legitimation, and weakness minimisation legitimation. I am going to show how many of them will fit into this study. The basic idea is that a researcher can address validity in the mixed qualitative and quantitative methods through these legitimation procedures so that the validity of the study is ensured. Later this concept of legitimation was further developed by Dellinger and Leech (2007) to design a validation framework (VF) in order to deal with the validity issues in MMR. Their VF includes: the foundational element; the elements of construct validation for quantitative, qualitative, and mixed research; inferential consistency; the utilisation/historical element; and the consequential element.

VF is a flexible tool for researchers to use when needing to evaluate mixed research studies (Leech et al., 2010) and has been applied to evaluate the validity of MMR by

Leech et al. (2010) and Davis-Duerr (2010). Of these different components of VF, I am going to focus on the elements of construct validation for mixed methods research (as shown in table 4.2), as the present study is also mixed methods. Hence, the elements of construct validation for quantitative, qualitative, and mixed research is the key of the VF and more importantly the construct validation for mixed research includes legitimization, which was previously identified by Onwuegbuzie and Johnson (2006) to evaluate the validity of MMR studies. The other two components of the construct validation of MMR are design quality, and interpretive rigour. Davis-Duerr (2010) used this construct validation to reflect how his own research maintained validity measures. I am going to consider the three components, (i) design quality, (ii) legitimization and (iii) interpretive rigour to explain how they fit into the present study.

Of this construct, design quality, which measures the methodological rigour of the mixed research study, consists of four components: design suitability, design adequacy/fidelity, within design consistency, and analytic adequacy.

4.7.1.1 Design Quality

In this study two components of design quality are suitable to my study: design suitability and within design consistency. I have explained in subsection 4.5.1 how the research questions are met by the different quantitative and qualitative research methods, and how the research design has been suitable to meet the research purposes. In addition, I explained that questionnaire surveys were used as a precursor to investigate the research problems in detail at the interviews. These measures ensure the design suitability.

Within design consistency is measured by assessing the procedures and design of the study (Davis-Duerr, 2010). I pre-tested all the research instruments used in this study for the survey and the interviews, including the observation. Therefore, the experience from pre-testing helped me to improve the instruments, as I explain later individually. In addition, data obtained from one source (e.g. survey) was revalidated with other sources (e.g. interview and observation). In this way the within design consistency was maintained.

Table 4.2: Mixed Methods Elements of Construct Validation (part of the VF model)

Design Quality
Design Suitability
Design Adequacy/Fidelity
Within Design Consistency
Analytic Adequacy
Legitimation
Sample Integration Legitimation
Weakness Minimization Legitimation
Sequential Legitimation
Conversion Legitimation
Inside-Outside Legitimation
Paradigmatic Mixing Legitimation
Commensurability Legitimation
Multiple Validities Legitimation
Political Legitimation
Interpretive Rigor
Interpretive Consistency
Theoretical Consistency
Interpretive Agreement
Interpretive Distinctiveness
Integrative efficacy

Source: Extracted from Dellinger and Leech (2007)

4.7.1.2 Legitimation

Being a small scale study I did not find all the matching criteria for legitimation when I tried to apply the VF model to my study. With regard to legitimation, in this study two kinds of legitimation seem to be more relevant and suitable to my study. They are weakness minimisation and inside-outside legitimation.

Weakness minimisation legitimation is ‘[t]he extent to which the weakness from one approach is compensated by the strengths from the other approach’ (Onwuegbuzie

and Johnson, 2006: 57). As I mentioned earlier the perception obtained through questionnaire surveys can be distorted and therefore, in addition qualitative measures were implemented, mainly interviews and observation. On the other hand, in the interview the views of only a few participants can be obtained, while the survey covers a greater number of participants. In this way, weaknesses in each method were attempted to be overcome with other methods.

Inside-outside legitimization depends on the ability of the researcher to use participants' as well as researchers' views when describing and explaining the study. In this study I collected the views of students as well as lecturers, who commented on the students. In addition, the researcher's voice was presented, mainly when students' and lecturers' views contradicted each other, and also when the observation of practice is found to be different from the views expressed. However, precautions were taken not to allow the researcher's perception to have any influence when interpreting the findings.

4.7.1.3 Interpretive rigour

Interpretive rigour refers to the standards for evaluating the validity of conclusions and covers: interpretive consistency; theoretical consistency; interpretive agreement; interpretive distinctiveness and integrative efficacy. Of these five I explain the three which are relevant to the present study below.

Theoretical consistency explains that the inferences from the study are consistent with the current theories and empirical findings of other researchers (Teddlie and Tashakkori, 2009). This study is based on the construct of sociocultural theory and dialogic perspectives to learning, and develops an argument that lecturer-student interaction can assist content and language learning. Nevertheless, this study did not

go to the extent of empirically analysing the classroom interaction and making meta-inferences on how interaction assists learning. It only investigates if the present lecture discourse contains interaction that might be useful for the development of content and language, but makes only some individual inferences. Therefore, it may not be feasible to compare the inference of the study with the current theories.

Nevertheless, the other two closely related measures of interpretive rigour have been maintained in this study. They are interpretive agreement and interpretive distinctiveness. Interpretive agreement is the measure of consistency of interpretations across researchers. The different findings of the study and their interpretations are compared with the findings of other researchers within Sri Lanka as well as the Asian and South Asian context and are presented in the discussion chapter. In addition, interpretive distinctiveness is ensured when a difference in opinion arises between my interpretations and others. Whenever there is a difference, they are also clearly mentioned and the reasons for this difference of opinion is also analysed to a certain extent. For example, a reason for poor interaction in FAS lecture classes may be due to the fear of ‘ragging’¹⁵ that takes place at FAS, while in other contexts this has not been relevant.

Even though I have evaluated my own study with some suitable components of the VF model, I should not deny the fact that as a researcher evaluating my own study may give room for bias, in addition to my being a novice researcher. This evaluation may also differ from person to person. Moreover, when the data collection was done I did not have the knowledge of VF. A pre-knowledge of VF and due consideration of the different components of VF at the beginning of the research may have brought

¹⁵ See chapter 6 for a detailed description of ragging

more fruitful results in terms of validity. Nevertheless, from the beginning of the present study validity has been ensured through two measures that are intertwined with the overall MMR approach. One is the measure of triangulation and the other one is the selection of suitable methods within the overall MMR design. Hence, triangulation is also part of VF through legitimation. The reason for this consideration is, as Bazeley (2002) claims, validity remains not in the application of certain rules but it 'stems more from the appropriateness, thoroughness and effectiveness with which those methods are applied and the care given to thoughtful weighing of the evidence' (p. 9).

We have already seen that the underlying principle of MMR is to combine the different methods (quantitative and qualitative) in a manner so that the weakness in one method can be offset by another, or else one method can complement another to bring good results. Ridenour and Newman (2008) argue that 'consistency among purpose, question, and design is the standard criterion for planning studies of high quality and scientific value' (p. 65). In addition, it is advisable that the research methods selected should address the purpose of the research and the research questions (ibid).

In addition, under each research method and instrument I have explained how measures are taken to ensure higher accuracy and validity. For example, the classroom observation is accompanied by audio recording of classes and followed by transcription and analysis. In this way, higher accuracy is achieved.

4.7.2 Reliability and generalisability

I have addressed the reliability and generalisability issues in chapter 8 under limitations also. Reliability is a question of the neutrality of the research instruments – if they would measure the same result when used on another occasion (Denscombe, 2003). For Bryman (2004) reliability is ‘concerned with the question of whether the results of a study are repeatable’ (p. 28) and also refers to the consistency of the measure (ibid). In this study both qualitative and quantitative methods are employed. As I mentioned earlier, in this study only a single observer was involved and therefore the problem of inter-observer consistency did not arise. Identifying the types of questions is the only measure in this study that warrants the researcher’s judgement. To overcome this issue and maintain consistency in identifying the types of questions from the lecture discourse transcript a number of measures were taken. First a clear working definition was in place. Second the opinion of a colleague was obtained as I explain later. Third the classification system developed used stringent criteria (e.g. duration of lecture, types of episodes, and total duration of interactional episodes) which reduced the involvement of the researcher’s own judgement or intuition. Fourth the lectures were recorded and transcribed and therefore observer errors were minimised.

Generalisability is the ability of the research to apply the findings of a particular study to a broader context. This study involves a small number of samples and focuses on a particular faculty of a small university and therefore it is usually assumed that generalisation of the findings is not possible for a wider population. However, there are some merits too in this study, which was carried out as a mixed methods study and involved both quantitative as well as qualitative measures. As I mentioned previously,

the concept of complementarity would overcome the issue of generalisation to a certain extent by using both quantitative and qualitative methods in this study. Furthermore, all second year students were interviewed, around one third of the total faculty population. Therefore, the findings of this study could be extended to the whole faculty and also to other faculties of the university which run their courses in the English medium with similar students and small class sizes. In addition, it can be extended to other faculties which are similar to FAS, as I explain in chapter 7.

4.8 Research participants

4.8.1 Students

In the process of investigating science students' lecture comprehension abilities and their classroom interaction, second year students were selected to participate as a purposive sample. In purposive sampling the researcher selects samples, which are relevant to the research questions (Bryman, 2004). Purposive sampling, however, does not mean we can select any case we happen to choose (Silverman, 2005) but one needs to think critically before selecting the case. In this case, second year students were selected for two reasons. One is the problems they face in lecture comprehension, and other one is their ability to realise and express their problems.

The selection was based on the assumption that if any problems existed, the severity of the problem could have been at the beginning of their academic year and less in the following years. Considering this assertion, although the first year students seemed appropriate for this purpose, these students faced another problem. During the first semester of the first year, first year students (junior students) face the problem of 'ragging'. In the case of FAS, it lasts for a semester or more from the day students enter the campus. At the time of planning for data collection, the first year students

were just relieved from the ragging period. Therefore, it was assumed that they may not express well their problems and be able to reflect on the existing situation.

In the second year, there are two major streams: Biology and Mathematics. At the time of the study 26 students had registered for the Biology stream, while another 22 for the Mathematics. Of the registered 48 students only 36 followed the course in that academic year. Others dropped out, postponed or transferred to other universities. All these 36 students were part of the sample and their composition is given below in table 4.3.

Table 4.3: Composition of student sample

	Biology	Mathematics	Total
Male	5	14	19
Female	14	3	17
Total	19	17	36

The final sample consisted of 19 male students and 17 female students.

4.8.2 Lecturers

In selecting the lecturers a purposive sampling method was used, as the lecturers who taught the second year students only were considered for the study. Another consideration was the preference given to the senior lecturers in the main study. In the pilot study¹⁶ junior lecturers had participated. Having found that their lecture discourse contained only a little evidence for lecturer-student interaction, it was decided to consider the senior lecturers in the main study so that a cross sectional view of the faculty could be obtained.

¹⁶ A pilot study was carried out before designing the main study to get first hand information of the existing lecturing situation at FAS. For this four junior lecturers and each of their lectures were recorded and transcribed. In addition, survey questionnaires were administered among the then third year students and the four lecturers. The data obtained from the pilot study were used to design the main study.

In order to identify the lecturers who would volunteer to be involved in the study, a request letter was given to the dean of the faculty explaining the purpose of the research. The dean then forwarded the letter to the three heads of departments, namely Biology, Mathematics and Physics. The heads were requested to send the names of two lecturers, who volunteered to participate in the study, from each of their departments. I explain this process in the next section also. The heads, in turn, provided the names of six senior lecturers; three from Biology, two from Physics and one from Mathematics. From those volunteers, a sample of four lecturers was selected considering two criteria. One was the lecturers conducted lectures for second year students. The other one was two of the four senior lecturers (herein after referred to as lecturers) should be teaching to the biological science students, while the other two to Mathematics students.

Table 4.4 indicates the lecturer identification. M refers to mathematics, B refers to Biology and L refers to lecturers. The gender was not considered as a criterion for the selection of the lecturers as it was not a factor for investigation within the scope of this study. However, out of the four selected lecturers two happened to be female, which made a gender balance in the lecturer sample. Having selected participants for the research, ethical approval was obtained for the study as discussed below.

Table 4.4: Details of lecturers' sample

Identification No	Subject	Department	Gender
ML1	Physics	Physics	Male
BL1	Biotechnology	Biology	Female
ML2	Applied Statistics	Mathematics	Male
BL2	Animal Physiology	Biology	Female

4.9 Ethical approval

Ethics is an integral part of the research which ensures ethical guidelines in the collection of data, in the process of analysing data and in the dissemination of findings (Denscombe, 2003). Therefore, ethical considerations were given importance from the beginning of the research design. Initially the approval of the Vice-Chancellor was obtained to conduct the study in FAS and later the dean of FAS was approached personally and was briefed about the purpose of the research, as mentioned above.

Informed consent is also an important component of research ethics. It gives the right to the research participant to decide whether to take part in the research or not (Cohen et al., 2000) and therefore, the department heads were met personally and the purpose of the research was again explained. Later one of the biggest departments, Biology, invited the researcher to explain the research purpose. He was asked to explain how the confidentiality of the lecturers and the faculty could be maintained. Because classroom observation was something new to the faculty members and therefore had caused some reasonable doubts among the staff who feared for the revelation of their identity. Bryman (2004) discusses this kind of access problem. ‘Simply because you have gained access to an organization does not mean that you will have an easy passage through the organization’ (p. 299). Therefore, the researcher had to explain the purpose of the study, the methodology adopted and the possible use of the outcome including the benefits to the faculty. Also, he assured anonymity, confidentiality and explained how the research is free from any risk for their profession or personal factors. It is the researcher’s duty to respect the rights of the participants, and avoid any harm to the participants (Denscombe, 2003). Following this brief meeting the Biology department nominated their lecturers so the other departments followed suit.

The selected lecturers were given an information sheet (appendix 2), which explained what was expected from the lecturers when they participated in the study. They were expected to complete a questionnaire, allow the researcher to record their lectures, and participate in a semi-structured interview. In addition, the information sheet contained information on their rights, and also explained to them how their confidentiality would be maintained throughout the study; in the reports or thesis. When the lecturers understood their role in the study, they were asked to indicate whether or not they were willing to participate in the study. Once they had given their verbal agreement, they were requested to sign a consent form formally, which clearly explained their right to participate and withdraw from the project. Informed consent allows the participants to be involved in any research study without 'any element of fraud, deceit, duress, or similar unfair inducement or manipulation' (Berg, 2001: 56).

Similarly, the students were also given the information sheet and the purpose of the research was explained in both English and Tamil at a meeting arranged with them. After clearly explaining their role in the research, they were also requested to indicate their willingness to participate in the study.

Once these preliminary procedures were completed, ethical approval was obtained from the research ethics committee of the University of Nottingham in accordance with the BERA (British Educational Research Association) guidelines. BERA guidelines stipulate that all educational research should be conducted within an ethic of respect for the person, knowledge, democratic values and the quality of educational research. The guidelines for research are given under three themes: responsibilities to participants, responsibilities to sponsors of research and responsibilities to the community of educational researchers. Of these, the first and the third are relevant to

this study and the measures taken above and also the follow-up research steps below explain how the ethical criteria were maintained throughout the study.

In the next section, I am going to explain the different research instruments used in the study.

4.10 Research Instruments

4.10.1 Questionnaire

The questionnaire is one of the main instruments in gathering data in survey research. It is also relatively cheap and easy to administer (Bryman, 2004). In this study, questionnaires were used to find facts and perceptions. For example, the lecturer questionnaire was used to investigate the lecturers' perception of the students, mainly with regard to their lecture comprehension abilities, problems, etc. This kind of reflection helps check the validity of students' answers, when used with another method (e.g. interview). On the other hand, a questionnaire survey has its limitations too. In a survey, the researcher cannot ensure that all the questions are answered until he or she has analysed the completed questionnaires; the researcher cannot even trace who has not answered the questions when anonymity is maintained; the researcher cannot probe into an answer for further clarification or correction; and when the respondent is not fluent with the language in which the questionnaire is set it may affect the response rate.

Having all these limitations in mind some precautions were taken in designing as well as administering the questionnaire. The language used in constructing the questionnaires was more direct and simple and any ambiguity in the syntactic structure was avoided, including double negative questions. In addition, the questions

were arranged, wherever possible, according to question types. For example, the questions that required ranking were put together so that there would be less confusion for the respondents to understand the instructions and answer appropriately. Whenever MCQ type questions were used an additional option was given as ‘any other option’ so that respondents may be able to provide any additional information they wish to state on the topic.

In this study two types of questionnaires were designed to collect data: student questionnaire and lecturer questionnaire, as I explain below.

4.10.1.1 Student questionnaire

The purpose of the student questionnaire was to get the students’ self perception on their lecture comprehension and classroom interaction, but no question in the student questionnaire asked about their perceptions about the lecturers. In the student questionnaire, as seen in appendix 3 a variety of questions were set. For example, there were both open-ended as well as closed questions, and also rating scales. Though through open-ended questions a researcher might be able to get more information, it warrants more effort on the part of the respondents. Moreover, they give raw data for the researcher and subsequently consume more time to organise the data. Therefore, the number of open-ended questions was limited in the questionnaire and students were told to answer them in any language of their preference.

The other types of questions in the questionnaire, the rating questions, carried a scale, ranging from positive to negative (i.e. strongly agree to strongly disagree). Though these scales give an option of several choices for the respondents, one disadvantage of these rating scales is that we cannot know how genuinely they were answered by the

respondents. Nevertheless, in this study other research methods used can validate the findings obtained through rating scale questions and also through the questionnaire on the whole.

The questions were constructed to investigate students' background details in order to discover their course of study and previous performance in English examinations, followed by students' perception on lecture comprehension. The questions on lecture comprehension asked them to rate their own ability to understand the lectures, identify the importance of different factors that influenced lecture comprehension, and how they solve their lecture comprehension problems, for example. The questions on lecture comprehension were followed by questions on lecturer-student interaction, mainly their ability to ask and answer questions and the factors that influence their asking and answering questions.

4.10.1.2 Lecturer questionnaire

The lecturer questionnaire was used to collect information on the students from the lecturers' perspectives so that it was a slightly adjusted version of the student questionnaire. For example, if a question in the student questionnaire asked 'your overall level of lecture comprehension', the lecturer questionnaire was structured as 'your students' overall level of lecture comprehension' (see appendix 4 for lecturer questionnaire). Questions to evaluate the lecturers' themselves were avoided. This was because during the process of obtaining ethical approval it was realised that lecturers would not like being the subject of the study. Furthermore, it was considered that the lecture observation may give more firsthand information of lecturers than obtaining this through their perception.

In the questionnaires there were two sections: A and B. Section A deals with lecturers' personal information (educational professional qualifications, experience, etc.), while section B contains question to investigate lecturers' perception of students' lecture comprehension abilities, problems, abilities, and ways they overcome their comprehension problems. Also it investigates students' abilities to answer questions or ask questions and the reasons for their limited interaction. As a whole both student and lecturer questionnaires were used to investigate the perception of students and lecturers with regard to the reasons for students' lecture comprehension problems, how they solve the problems, what assistance students' expect from the lecturers, what assistance is given by the lecturers, whether they use lecturer-student interaction to solve their comprehension problems, and if not what problems they face in lecturer-student interaction in the classroom.

4.10.1.3 Administering the questionnaire

Before being administered, both student and lecturer questionnaires were pre-tested involving two students and a lecturer. These participants were not included in the main study. After the changes to the questionnaires were made, as a result of the pre-testing, the student questionnaires were given to 30 students who attended an English language class. Two students who participated in the pre-testing were excluded, while four others were absent from the overall 36 students. Coincidentally there were 15 male and 15 female students in the class. The students consisted of both Biology and Mathematic students. These questionnaires were administrated during the 7th week of the semester, as per the research plan (see appendix 1 for Gantt chart). When administering the student questionnaire the meaning of the questions was explained to the students in Tamil and the students were encouraged to answer the open ended questions in their mother tongue. In this way, attempts were made to increase the

response rate of the survey questionnaire. All 30 students present in the class returned the completed questionnaires in the class itself.

The lecturer questionnaires were given to four participating lecturers during the 7th week and the completed questionnaires were collected within two weeks.

It is considered that the opinion expressed through a questionnaire carries the respondents' judgement (Denscombe, 2003) and therefore other qualitative data collection measures, such as interview and observation, were also employed in this study to cross check the validity of the questionnaire data, mainly from three sources: lecture observation, student group interviews, and lecturer interview. This kind of cross checking was made possible within the overall MMR design used in the study. The sections below describe them.

4.10.2 Lecture observation

Observation is one of the data collection techniques associated with the qualitative method. In observation, the researcher takes field notes of the behaviour and activities of individuals at the research site (Creswell, 2003). Observation, rather than relying on people's perception, allows the researcher to collect firsthand information of the real situation (Denscombe, 2003). The merits of observation as a research method arise from the demerits of other methods. Though questionnaires and interviews are good instruments to reflect the participants' perceptions, the question is how well these are related to actual behaviour. In survey research (e.g. questionnaire) behaviour could only be inferred as reported by the respondents (Bryman, 2004). For these reasons, observation is regarded as more reliable than other methods. In addition, in this study observation is accompanied by a recording of classroom activities (e.g.

lecture delivery or interaction) therefore, collecting more accurate information was made possible.

Denscombe (2003) explains two kinds of observation: systematic and participant observations. The former, he thinks, is suitable for a classroom setting, whereas the latter is sometimes made without revealing the identity of the researcher. This is known as covert participation. In participant observation, the researcher immerses him or herself in the setting and observes regular phenomena. Though participant observation is a common name it is not always the case that the researcher participates in the activities. The researcher's role differs from participant to non participant. In this particular study, the researcher had overt access to information, which is based on informing the subjects and getting their agreement (Silverman, 2005). This is in contrast to the covert access in which the researcher hides his identity and access to information is without the subject's knowledge. The latter leads to some ethical issues. Moreover, being a lecturer of the same university, the researcher's role is also known to others. I discuss this further under limitations in this chapter.

Based on the personal timetable of the four lecturers, an hour period was fixed for observations of four lectures by each lecturer. Based on the individual lecturer's timetable the observation was planned throughout the 15-week semester, maintaining at least a one week interval between two consequent observations of lectures conducted by the same lecturer. The lecturers were informed of the observation of their lectures at short notice. Even though they were informed only an hour before the lecture commenced, they all agreed to the observation. This was done to avoid any unusual preparation by the lecturers for the lecture class.

Table 4.5: Details of observed lectures

Subject	No. of observation
Physics	5
Biotechnology	4
Applied Statistics	4
Animal Physiology	4
Computer Science	1
Electronics (Physics)	1
Earth Science	1
Chemistry	1
Mathematics	1
Basic Climatology	1
Statistics (Regression Analysis)	1
Total	24

Before commencing regular classroom observation and recording a pre-test was done with a lecturer. Following the pre-test and necessary adjustments to the recording, it was decided to observe four lecturers and four lectures by each¹⁷. However, there was a need to observe other lecturers too under emerging needs and therefore, seven other lecturers, in addition to the original four, were observed for one lecture each. I will explain about these emerging needs later. The details of the observed lectures are given above in table 4.5. Therefore, altogether 24 lectures were observed. Out of these 24 lectures, 12 lectures were transcribed from the first four regular subjects at a rate of 3 from each. For each subject the 1st, the 3rd and the 4th lectures were transcribed. The decision to transcribe three lectures was made in order to handle a manageable amount of data. The 1st lecture was included for transcription as the first lecture may differ from others as the lecturers may behave differently during the first observation, and it was assumed that it may help to make a good comparison with the later ones. When it came to 3rd and 4th lecture the lecturers may behave more naturally.

¹⁷ For Physics an additional fifth lecture was observed as the fourth one was shorter.

Therefore, in order to omit one lecture, the 2nd one was omitted while retaining the other three.

In analysing the classroom interactions, the transcribed lecture data were used as one of the main sources, and was supplemented with other sources of observational data such as lecturer style data, classroom observation schedule and the researcher's field notes. The last contained extra linguistic information that the researcher noted during the observation of the lectures and also during informal conversations with students and lecturers. The method of lecture discourse analysis is given in chapter 5.

Identifying the lecture discourse and transcription

I call the discourse that occurs in the FAS lectures FAS discourse. The four subjects that were transcribed for the detailed lecture discourse analysis were Physics, Biotechnology, Applied Statistics and Animal physiology. The four lecturers who conducted those four subjects were identified as ML1, BL1, ML2, and BL2 in the order stated above. These numbers were assigned based on the order in which the observation was made as well as their subject area; that is observation of a mathematics lecturer 1 (ML1) commenced before lecturer 2 (ML2). Moreover, lectures were identified with the short form of the name of the subject. PH, BT, AS, and AP refer to Physics, Biotechnology, Applied Statistics, Animal Physiology in the order mentioned, and also a number was given to match the sequence of lecture recorded. For example, the third lecture in Biotechnology was identified as BT 3 and so on. However, this number refers to the observation and recording only but does not indicate the lecturer's lecture series order. The lecture recordings were transcribed verbatim using Sound Scribe, a software produced by MICASE, downloaded from the MICASE webpage. Students were identified as for example MM1, BM1, MF1, or

BF1. The first M or B refers to Mathematics or Biology, while second M or F refers to male or female respectively. The number indicates the identification number of the student in that particular class (as I explain further below) and it varies from class to class. For example, MM1 in PH1 and MM1 in PH3 refer to different students.

During observations one common problem that may occur is that the observer's own perception influences the observation so that the data could be unreliable (Denscombe, 2003). This is also known as subjective findings. However, during observations, the influence of personal factors was minimised by means of using four mechanisms that in turn ensured a systematic observation of this study. Those four mechanisms were (i) recording of lecture delivery, (ii) use of classroom observation schedule, (iii) observer's checklist on lecture delivery and (iv) researcher's field notes, as explained below. As only the researcher was involved in the classroom observation the possible differences that would occur when more than one observer is involved were avoided. When more than one observer is involved, there is a possibility for lack of 'inter-observer consistency' (Bryman, 2004: 71), though there is a possibility of personal influence with the single observer. For example, Bryman (2004) discusses intra-observer consistency, which deals with the ability of the observer to behave consistently on different occasions and in different contexts. But as far as this observation is considered the researchers' personal judgement is not needed to complete either the observation schedule or the checklist on lecture delivery. Moreover, under the MMR design the classroom observation is used in addition to the audio recording of the entire duration of individual lecture and therefore it has a lesser role.

(1) Recording of lectures

Recording the lectures had a very obvious advantage. During the observation if the researcher relied only on the field notes, he or she would not be able to get all the required details. The objective of the study being lecturer-student interaction it was necessary to capture all kinds of interactions that took place in the classroom.

In order to record the lecture delivery a digital recorder (Transcend – T.sonic 820 multi functional digital recorder) with a 82 mm X 40 mm X 12 mm dimension was used. I explain the processing of recorded lectures later.

(2) Use of classroom observation schedule

Cohen et al. (2000) consider structured observation as a systematic and also useful method to generate numerical data from the observations using structured observation schedules. Even though observation schedules could be used to ensure that each participant's behaviour is systematically recorded (Bryman, 2004), in this study the classroom observation schedule was mainly used to mark the place where students were seated in the classroom, the gender of the student, the lecturers' movement within the classroom, peer discussion, etc. For example, if a male student is seated in the front of the classroom, he was marked as M1 in the relevant box (see the appendix 5 for a sample schedule), and I planned to mark the question number that particular student answered or asked in the relevant box, followed by writing the question in the researcher's field notes. However, during observation it was difficult to mark the question number in the relevant observation schedule and the questions in the notebook, because of the high speed in which the classroom interactions were held. Therefore, I manually noted down the student identification number, question and

answers in the notebook only. It was important to identify who answered the question and what the question was so that later when the recording was transcribed the notes supplemented the recording to give a detailed transcription.

(3) Use of observers' checklist on lecture delivery

An observer's checklist on lecture delivery was used to identify the lecturers' delivery style. In the pilot study a checklist on lecture style was used and completed by lecturers and students. While the previous checklist was adopted from Behr (1988), while the present one, as shown in the findings chapter (table 6.8), was devised by the researcher himself after several weeks of classroom observation exclusively for this study and was filled by the researcher.

This checklist was constructed based on the lecture delivery at FAS. The checklist contains four sub sections: commencement, presentation, interactivity, and ending of lectures. Each subsection contains a number of items to evaluate the lecture delivery style of the lecturers. For example, the commencement section evaluated how the lecturer commenced the lecture (e.g. whether he or she links the present lecture with the previous one), while the presentation stage assesses whether lecturers used any visual aids, dictated notes, repeated key points, etc. The third stage, interactivity is an important stage as far as the focus of the study is concerned. It evaluates whether lecturer asks questions or facilitates interaction in the classroom. Finally the ending section pays attention to how the lecturer ends the lecture. Although, this checklist contained suitable items to cover a broad range of lectures, during the course of observation it was found that there were a small number of additions needed to the checklist (e.g. 'lecturer draws examples to explain the concepts' was added). A tabulated checklist is given in the findings chapter.

(4) Researcher's Field notes

Field notes were important to note down contextual and extra linguistic information relevant to the classroom interaction. Field notes should be completed immediately after every observation and also after any informal meeting (Berg, 2001). Therefore, notes were written down during the observation, at the end of the class or soon after any informal meetings held with the students or lecturers. Fink (2000) states that field notes are a supplement to the recording. In transcribing these lectures the extra linguistic information (e.g. who spoke) needed for the transcription was obtained from the researcher's field notes.

4.10.3 Students' Group Interview

Group interviews were conducted with students. In group interviews a number of individuals are interviewed simultaneously so that the researcher can save time on conducting individual interviews (Bryman, 2004). This group interview does not expect a collective response from the members of the group, as happens in a focus group discussion, but gets answers from any member of the group. Though focus group discussion, which gives more autonomy to the participants (Vanderstoep and Johnston, 2009) is more suitable, it could not be conducted at FAS. During the pre-testing it was found that students lacked the ability to discuss a topic among themselves and present the overall idea, and needed continuous support from the interviewer to express their ideas. In the group interview the discussion focuses on several unrelated topics guided by follow up questions by the researcher so that it enables the researcher to obtain more information within the scope of the investigation. Even though the data that could be obtained from the group interview is little (Cohen et al., 2000), the following measure was adopted to increase efficiency.

In the present study, initially a list of questions, known as the ‘interview guide’, (Bryman, 2004: 321) was designed to conduct the group interview for students. That guide contained the main questions on the topics under investigation and a few follow-up questions with several prompts. The two main areas covered in the guide are lecture comprehension, and lecturer student interaction. These main themes and sub themes were identified based on the RQs and survey findings. That is within the MMR design the research questions guide the topic for investigation. In addition, the findings from the quantitative method (e.g. questionnaire survey) can be verified and investigated in detail by the qualitative method (e.g. interview). That is, one method of data collection complements the other. A question on lecture comprehension in the interview guide had the following structure:

Main question: what do you feel about your ability to understand lectures?

Follow-up question: easy or difficult?

Follow-up question: [If easy] – why?

Prompts: {language fluency/ lecturers’ assistance}

Follow-up question: [If difficult] – reasons?

Prompts: {speed of lecture/ vocabulary/ subject knowledge/ listening skills}

In the guide, there were questions to obtain the students’ perspectives of the students’ lecture comprehension abilities, lecture comprehension problems, asking questions, answering questions in the classroom and so on.

Participants for the group interview

For the group interview, two groups were selected from both streams: one for Biology and another for Mathematics. The reason for selecting two groups was that it was assumed that students’ problem may vary based on their stream of study. For the Biology group, five students, comprising three female and two male students, were selected out of 14 female and 5 male students in the class. In the Mathematics group,

there were three male and two female students out of 14 male and 3 female students. The selection of students was done purposely to obtain a good mix of gender and also preference was given to the students who were able to express themselves well.

4.10.4 Lecturer interview

Semi-structured interviews were conducted with lecturers. Semi-structured interviews are part of the qualitative interview. Bryman (2004) describes the qualitative interview as more flexible and allowing a free flow of expression from the participants, while a quantitative interview is structured and follows a rigid pattern of questioning. Within the qualitative interview, he identifies two types: unstructured and semi-structured. In the former the researcher follows a brief set of prompts to deal with certain topics, while in semi-structured a list of questions are used, but with a greater flexibility in the order in which questions are asked. Though through unstructured interview more information can be collected, it is also difficult for a researcher to organise the collected information; it consumes a lot of time in organising and analysing the information. Therefore, a semi-structured interview appears to be a compromise technique that carries the benefit of both unstructured and structured interviews (Vanderstoep and Johnston, 2009).

In this study also semi-structured interviews were conducted with lecturers because it was necessary to focus on certain research questions and also to focus on the objectives of the study, while allowing some kind of freedom of expression on the part of the lecturers. Bryman describes the semi-structured interview as one that allows a series of questions with varying sequence, and one that allows the researcher to probe the information further. In interviews, semi structured or structured, the validity of the research can be enhanced through probes, follow-up questions, and

attention to nonverbal cues (Ridenour and Newman, 2008). Therefore an interview guide was prepared for the semi-structured interview and the same questions used for the questionnaire survey were presented in a different pattern. Therefore, the reliability could also be checked using this guide, as reliability is a common problem in interviews.

Lecturer interviews were held during the latter part of the semester; from the 12th to 14th week, when the scheduled lectures had been observed. Lecturers were invited to the researchers' office so that it was convenient for recording. The lecturer interview schedule was similar to the students' group interview schedule. The two major areas covered in the schedule were students' lecture comprehension (i.e. students' abilities, problems, and strategies) and their classroom interaction (i.e. asking or answering questions, problems and strategies lecturers adopt to motivate students to speak). An abridged version of this lecturer interview schedule was given to lecturers prior to the interview day so that the lecturers could come prepared for the interview. This was done to get the most out of the lecturers during the interview and also to save the time.

All four lecturers expressed their perspectives well. Three of the lecturer interviews lasted for an hour each, while the interview with the Animal Physiology lecturer took more time, around 90 minutes. This was because the lecturer went beyond the interview questions.

4.11 Emerging needs

The merits of the qualitative approach are that it accommodates multiple methods within its design, and the research procedures are not rigid but rather emerging

(Creswell, 2003). In this MMR design also it was possible to revisit and improve the research steps and instruments for a better investigation of the phenomenon.

During the process of data collection, two emerging needs were identified and included in the ongoing research design. One was the necessity to observe more lecturers and another was the need to have discussion with tutors. During informal conversations with the students, they mentioned the lecture delivery style of some other lecturers. These lecturers also taught second year students along with the four regularly observed lecturers. Therefore, it was decided to observe seven of them so that all lecturers who conducted classes for second year students were covered. Those lecturers were also approached and the purpose and method of the research was explained. They were given the option of participating in the research. Fortunately all of them expressed their willingness to participate and the usual ethical procedure was followed with them too, as with other lecturers. One lecture conducted by each of those seven lecturers was observed, but those seven lectures were not transcribed.

Similarly, during the group interview students reported that they consulted their tutors too in order to overcome their comprehension problems. Therefore, it was decided to have a group interview with them as an emerging need. Tutors are similar to Teaching Assistants, performing the same function. Once the students complete their final examination they are absorbed into these positions in different departments based on their specialisation and academic merit. The tutors were met in two groups: the tutors from the Mathematics department, and tutors from Biology and other subjects. In the first group, there were four tutors and in the other five. The discussions were held in Tamil and recorded. The discussion focussed on students' lecture comprehension, overcoming their comprehension problems, ragging, students' fear of lecturers, etc.

These topics were selected as a way to confirm students' previous reporting of different activities.

4.12 Data analysis

This section briefly describes methods of data analysis employed in the main study. In this study, there was a variety of data available from both qualitative and quantitative research methods.

The quantitative data were obtained from student and lecturer questionnaire surveys. Questionnaire survey data, mainly the data from ranking scales, were analysed using SPSS. Other student responses were analysed using simple descriptive techniques (i.e. MS Office excel). The number of respondents was limited; 30 students and 4 lecturers; so that the analysis of data was manageable including the analysis of open ended questions.

The qualitative data came from three major sources: student group interviews, lecturer interviews and lecture recordings. In addition, there were data from the checklist on lecture style, classroom observation schedule and the researchers' field notes. However, the last three sources provided only supplementary data that were used to fill any gaps in the main sources of data, or provided some additional information. For example, the field notes can provide some extra linguistic information connected with classroom observation.

The student group interviews were held in Tamil and they were translated into English and transcribed. In the translation, the key idea stated in the sentence was preserved. In the group interview the overall idea expressed in the discussion was important, therefore, only broader important aspects were considered for transcribing.

When transcribing group interview recordings, attention was also paid to identifying the students. As the voices were familiar to the researcher, it was not difficult to identify the students from the recording. The transcript followed the general pattern of transcription convention and whenever any English words were used, they were indicated differently including the omission.

Three of the four lecturer interviews were held in English, so they were transcribed, and the one which was conducted in the mother tongue was translated into English and then transcribed. The transcription was similar to the group interview. During the transcription process, the details that were not directly relevant to the research questions or were highly confidential were omitted.

Identifying themes from interview data

After the transcription, the qualitative data obtained from the student group interviews and lecturer interviews were arranged into different themes. These themes were previously used to construct the questionnaires and interview guides and also they were derived from the research questions. This kind of analysis is known as thematic analysis (Vanderstoep and Johnston, 2009). The student group interview guide used the following themes: lecture comprehension problems, reasons and suggestions; students asking questions and answering questions; enhancing interaction, etc. The lecturer interview data were also arranged into more or less similar themes to reflect the students' discussion. These themes were pre-identified based on the objective of the research (i.e. students' lecture comprehension and lecturer-student interaction). By using pre-defined themes, cross checking the responses given by the students and the lecturers during the questionnaire survey became possible.

Identifying emerging themes

Any emerging themes from the interview were also taken into account. The interview transcripts of student group interviews for the two groups were entered into a coding sheet separately. Likewise, each of the four lecturers' interview transcripts were also entered separately. In this process only the answers/responses given by the respondents were entered but the questions were not included. These responses were then transferred to an initial coding, followed by subthemes and finally into themes that emerged. These themes were purely emerging from the data but not pre-identified themes (e.g. lecture comprehension or lecturer-student interaction). The initial themes and subthemes were discussed with the peers and supervisors and upon mutual agreement four themes were identified: (i) university atmosphere, (ii) institutional capacities, (iii) teachers' capacities (iv) and students' capacities. Later these coding of students and lecturers were transferred to two *Microsoft Excel* sheets each and the data were compiled based on the subthemes in order to facilitate data integration and presentation. Of these themes only those directly addressing the research questions are presented in the findings chapter.

Lecture discourse data

The lecture recordings were transcribed verbatim, checked and rechecked for accuracy. A transcription convention was adopted and a high degree of accuracy was maintained in transcribing the lecture discourse (a list of transcription conventions is given in appendix 6). Special attention was paid to intonation, pauses, etc. as they were important in understanding the discourse. The lecture discourse was examined carefully to identify instances of student-lecturer interaction. A detailed classification system for the analysis of lecture discourse is presented in chapter 5. In addition, the lecturers were given their recorded audio clips and the transcripts of lecture delivery

to be checked for any inconsistency. Two of the four lecturers made a few changes to the terminology. Of these, one lecturer wanted certain portions, mainly his advice to the students, to be deleted from the transcript.

4.13 Maintaining ethical consideration in the study

As assured to the participants of the research when obtaining their consent for participation in the research, ethical considerations were maintained throughout the study. The names of the university, the lecturers, the students or any other hints that would enable a reader to guess the lecturer or subject were avoided in the transcript.

Also, any contextual clues that may enable a reader to guess the lecturer were avoided. However, the names of the four subjects (e.g. Biotechnology, Physics, etc.) that were under investigation were mentioned as they are needed for the comparison and discussion. The more personal comments made by the students towards the lecturers or his or her lecture delivery that were of a derogatory nature or were harmful to their profession were also deleted from the transcript.

When the lecturer interview recordings and the respective lecture discourse extracts selected to appear in the final thesis were given to the lecturers to be checked for accuracy of the transcript, they said that they did not want any changes to be made. However, it was not known whether lecturers actually went through them. In this way, transparency was maintained, which in turn assured the participants that there was no risk from having been involved in the research.

4.14 Limitations of the study

I explained earlier how this study addressed validity issues. In this study, which is carried out under the MMR design, weight was given to qualitative methods, as

mentioned earlier and the general limitations of qualitative research are also applicable to this study. They are subjectivity, difficulty to replicate, problems of generalisation, and lack of transparency. However, the design of this study itself eliminated some of the limitations. In this study, the research design, which mainly used audio recording to collect data from lecture discourse and interviews, and therefore the personal influence of the researcher has been avoided to a greater extent in the findings. Moreover, the role of the researcher was limited to passive observer, leaving little room for personal influence in the research, to make the findings more objective.

Even though careful planning was done in the preparation and administration of the research instruments, certain things took place beyond the control of the researcher, setting or context. During the questionnaire survey, even though students were told clearly to answer the open-ended questions in any language that was convenient for them (i.e. indirectly to answer in Tamil), all of them answered in English. As a result understanding some of the students' expressions was difficult for the researcher. Sometimes during classroom recording students' voices were not audible, because students tend to talk slowly and also the instrument used was not able to capture the voice from a distance. Usage of additional instruments was also avoided, as it would be distracting. Though this problem was overcome by manually taking down notes on the students' interactions (questions or answers), there were cases where certain words or phrases were missed.

Another difficulty was experienced during the lecturer and student interviews. Whenever lecturers went beyond the subject of the discussion, interrupting them and bringing back to the point was difficult. Therefore, the researcher had to listen to all

their views. Similarly, students too addressed their grievances in the faculties, which were not relevant to the scope of the study. Nevertheless, the researcher had to listen to them, advised and made suggestions to their general problems in order to maintain rapport with the students. Although this did not affect the quality of the data collected, it consumed more time.

Another problem was the behaviour of the students. The Hawthorne effect indicates that the subjects alter their behaviour when they know they are the subject of a research study. This was experienced during the initial 2–3 weeks of lecture observation and recording. As mentioned under lecture recording students were reluctant to interact in the classroom, fearing that they would be questioned later. Though they were assured of no such questioning, only after a few weeks of observation was their behaviour found to be usual. Berg (2001) describes this Hawthorne effect as short lived, as does Hammersley (2005). This is similar to the observer paradox in which the presence of the observer influences the observation. The Hawthorne effect in the main study is reduced in two ways: One is the continuous observation and other one is building rapport with students so that they did not treat the researcher as an outsider. These two strategies are formally known as Disattending. The former is ‘erosion of visibility by time’, while the latter is ‘erosion of visibility by personalizing the ethnographer informant relationship’ (Stoddart, 1986, cited in Berg, 2001: 147).

For the analysis of transcripts of interviews a thematic analysis was made manually. Even though there is software that could be used for such analysis (for example, Nvivo) considering the small volume of the information they were not used. Though

there is a chance for human error when the analysis is done manually, care was taken to ensure accuracy.

4.15 Chapter summary

In this chapter, I explained the research methods that are used in this study in order to collect data to meet the research objectives. Establishing MMR as a suitable research design for the present study, I discussed the different quantitative and qualitative research methods that were employed within the overall MMR design. In terms of validity issues, I tried to use the Validation Framework and show how some of its components relevant to MMR are applicable to this study. In addition, I addressed the reliability and generalisability issues, including ethical considerations.

In the next chapter attention is paid to developing an analytical framework to deal with the lecture discourse data collected for the study.

CHAPTER 5 – TOWARDS AN ANALYTICAL FRAMEWORK OF LECTURE DISCOURSE

5.1 Introduction

In this section of the chapter, a review of the literature pertaining to discourse analysis is presented. Discourse level details are needed to investigate to what extent dialogic interaction occurs in FAS lectures. Discourse in this study refers to the linguistic elements of discourse constructed/co-constructed between lecturers and students, though there are paralinguistic elements also (e.g. gestures). We have seen in the last section of chapter 3 that dialogic teaching, which involves students actively in learning, favours the development of both content and language, the latter being especially important for students who learn in a second language. In this section, I design a system to investigate whether such a favourable lecture discourse is available at FAS.

5.2 Discourse analysis at tertiary level

Compared to studies on primary and secondary level spoken classroom discourse (Sinclair and Coulthard, 1975; Mehan, 1979; Lemke, 1990; Sinclair and Coulthard, 1992; Wells, 1993) tertiary level spoken discourse is relatively poorly researched. Further, although interaction can take place between students, its relatively rare occurrence in the Sri Lankan tertiary context of this study led me to consider lecturer-student interaction, which is similar to teacher-learner interaction, as the main concern of the present study.

The creation of MICASE (Michigan Corpus of Academic Spoken English) and BASE (British Academic Spoken English), another British model similar to MICASE, led to corpus based research on spoken academic discourse (for example, Simpson and Swales, 2001; Crawford Camiciottoli, 2004; Nesi and Basturkmen, 2006). In addition,

there are collections of other corpus too like CUCASE (City University Corpus of Academic Spoken English) which is being developed at the City University of Hong Kong among the Chinese L1 speakers; NUCASE (New Castle University Corpus of Academic Spoken English) is being built on the Limerick-Belfast Corpus of Academic Spoken English (LIBEL CASE) compiled at Limerick University and Queen's University Belfast; and EDASE (Edinburgh Academic Spoken English Corpus) being compiled at the University of Edinburgh. But these corpora are at their early stage of development and published results are yet to appear.

Moreover, the importance of corpus development is being realised; it is believed that 'the existence of spoken language corpora provides excellent opportunities for the study of spoken interaction' (Aijmer and Stenstrom, 2005: 1743), while these studies aim at 'help[ing] second language learners who may have difficulties understanding academic speech, and the linguistic analyses focused mostly on the lexical-, topical- and discourse patterns of lectures' (Csomay, 2006: 118). In addition, corpus based studies have investigated interaction in terms of the use of specific features in discourse. Mainly they have looked at interpersonal features such as personal pronouns, questions, asides, etc. (Rounds, 1987; Northcott, 2001; Crawford Camiciottoli, 2004, 2005; Fortanet, 2004; Morell, 2004, 2007). In this study there is also a small corpus of FAS lectures, and in order to find a suitable analytical tool for this lecture discourse, I turn the attention to the following questions:

- Q1) How is teacher-learner interaction analysed in different contexts?
- Q2) What are the important analytical components of a lecture discourse and what is the relative importance of each of them in the literature?
- Q3) How can an analytical system be developed for FAS lecture discourse components?

5.3 Q1. How is teacher-learner interaction analysed in different contexts?

There are two major approaches to the study of conversational interaction: Conversation Analysis (CA) and Discourse Analysis (DA) (Levinson, 1983). Of these two the DA approach which is also known as ESA (Exchange Structure Analysis) was developed by Sinclair and Coulthard (1975) to analyse the discourse in teacher controlled classrooms. In addition, both Conversation Analysis and Exchange Structure Analysis have contributed to our understanding of turn-taking and discourse structure in an academic context (Evison, 2008). CA is used to analyse the casual conversation that takes place between people who have equal rights or are assigned equal rights. He (2004) explains that:

This system explains how speakers earn their rights to speak, how speaking rights are negotiated and interactionally managed, how the next speaker is selected, how overlaps occur and how they are resolved, and how speakers fix problems in comprehension and miscommunication. (He, 2004: 568)

There is an argument that ESA is more suitable for classroom interaction that takes place between the one who has more power and the one with less (e.g. Evison, 2008). For example, in a teacher centred classroom the interaction that takes place between the teacher who has more power and the students as the ones who have less. Since the current study also arises from a context of teacher controlled classroom, the review is focused on ESA.

The ‘most well-known proponents of the ESA approach to classroom interaction are Sinclair and Coulthard’ (Walsh, 2006: 46). ESA was initially designed to analyse discourse in L1 content classrooms but later extended to L2 ESL/EFL classrooms as well. It is also considered as a linguistic approach (Edwards and Mercer, 1987) and treated as an entirely different approach to analyse the classroom from a sociolinguistic perspective (Ametller and Scott, n.d).

In the model developed by Sinclair and Coulthard, teachers initiate teacher student interaction (or exchanges in Sinclair and Coulthard's terminology) by asking a question (Initiation – I) in a one-to-one situation (or sometimes the first question is directed to the whole class), and the students respond to that (Response – R) question. This is followed by a follow-up (Follow-up – F), feedback or an evaluation given by the teacher. This is known as an IRF sequence; nevertheless the F is an optional move, as elaborated further below.

Sinclair and Coulthard's approach is also known as a structural-functional linguistic approach. Structural functional analysis proposes a two-way hierarchy of structures and their functions. Sinclair and Coulthard look into classroom lessons at different levels for the purpose of studying the discourse of the lessons. They are lesson – transaction – exchange – move – act. This is also known as 'hierarchical structure of discourse units' (Tsui, 2008: 262). The act is the lowest rank of the discourse and Sinclair and Coulthard (1975) identify three major acts that occur in all forms of spoken discourse: elicitation, directive, and informative. However, there are other forms of acts also identified in the study, such as prompt, clue, nomination, comment, and accept. In total they identified 22 acts altogether. It seems that of those three acts, mentioned earlier, only elicitation tends to warrant a linguistic response from students, while the other two require a non-linguistic response and an acknowledgement respectively. These acts are the skeleton of the '*Initiating Move*', which is one of the three moves that are commonly present in an exchange. The other two moves are Response (R) and Follow-up (the Follow-up is represented by either Feedback (F) or Evaluation (E)). Feedback is considered to induce further response from the students. Usually in the feedback move, the teacher can repeat students' utterances to signal they are to continue the answer, or ask for elaboration (Mortimer

and Scott, 2003). Evaluation is a kind of comment, and with evaluation the exchange is usually brought to an end (e.g. *it's full of facts that's right*). Therefore, in this three-part structure (IRF), the teacher poses a question, students respond to it, and the teacher gives feedback or evaluation as mentioned earlier.

Furthermore, the response move is expressed through reply, reaction or acknowledgement, while the follow-up move could be a comment, evaluation or acceptance. Three moves (initiation, response and feedback) together are called an exchange, but sometimes the last move, the follow-up, may not be present in an exchange. One or a series of exchanges make a transaction and it is marked by, according to Sinclair and Coulthard, frame words like *ok, well, right, now, and good* (Sinclair and Coulthard, 1975). Therefore, in a lesson there can be several transactions marked by frames. Even though the IRF structure is suitable for analysing interactional exchanges in a teacher centred, teacher controlled teacher-student interaction there are criticisms too for using the IRF structure, as explained below.

In the next section, I explain why I consider ESA to be a more suitable analytical tool to analyse the pattern of interactional episodes over the others, such as the CA approach.

The rationale behind using ESA as an approach to analyse the pattern of interactional episodes

Firstly, as mentioned previously, ESA is particularly suitable for classroom interaction that takes place between the one who has more power and the one or more with less. The present context of this study is tertiary level content classes where the medium of instruction is English as a second language and in this particular setting, particularly in Sri Lanka there is a clear imbalance of power between lecturers and

students. As with academic settings in other Asian countries, Sri Lankan lecturers and students maintain an authority-obedient role in the classroom. The students at FAS generally believe that lecturers have the authority to deliver the content while students should be passive listeners. Students also believed that they can reward or punish a student despite their individual talents, as revealed through the analysis of initial findings of this study. As a result, at FAS almost all the classroom interactions are initiated and controlled by lecturers, while the students played a passive role. This setting is similar to Sinclair and Coulthard (1975), which experiences a clear imbalance of power in classrooms. In addition, in university settings, as I explain below, Basturkmen (2000, 2002, 2003) applies the ESA to analyse the university talk and found that it works well with the setting when there is a power imbalance between the tutors and students.

Secondly, at FAS, the interactional exchanges developed are similar to the recitation script (Tharp and Gallimore, 1988) in which one-to-one question and answer sequences exist. More importantly longer interactional exchanges are absent throughout the lecture discourse. The fact that ESA is suitable to analyse shorter utterances of lecturer-student interaction and the availability of shorter interactional exchanges as well as teacher initiated teacher controlled interactional exchanges at FAS allowed me to consider ESA as a suitable tool to analyse the pattern of interactional episodes at FAS. Further, I am going to continue my argument that despite its limitations, ESA can be considered a suitable tool to analyse the FAS discourse, while paying attention to its applications at tertiary level in the section 5.3.2.

5.3.1 Criticisms of using the IRF structure

The IRF structure, which is the basis of ESA, is considered to be teacher-centred because in the ‘triadic’ IRF pattern (Mehan, 1979) the teacher has the authority to decide who will speak, who will take a turn or whether their responses are appropriate. In addition, it is believed that the features of a non-dialogic or authoritative classroom discourse are symbolized by this IRF structure. In non-dialogic discourse the teacher controls the classroom discourse, giving only limited opportunities for students to speak. Therefore, there are arguments for and against using this ‘triadic’ discourse structure in the lessons. Some researchers believe it could limit students’ learning abilities and paves the way for teacher centred learning (Mehan, 1979; Wood, 1992). Conversely, others still believe that teachers can use this triadic dialogue to lead the students towards student centred learning (Mercer, 1995; Wells, 1999; Nassaji and Wells, 2000).

Another common drawback assigned to ESA is it often fails to capture the multi functionality of an utterance because an utterance can have more than one function depending on the contextual clues. The DA approach classifies discourse in ‘purely structural – functional terms’ (Walsh, 2006: 48) and it is alleged that matching utterances to suitable categories (I, R or F) may be problematic due to the fact that an utterance can have more than one function, and that there cannot be a direct relationship between form and function (ibid). For example, ‘do you want me to explain this’ can be a question or an indication of amazement. The meaning depends on other contextual clues. When the ESA approach is used, this move can be identified as an initiation move only (I), neglecting the other function/s of the move. Walsh further states that the basic IRF structure is not able to analyse the interaction which is initiated and entirely managed by students. Therefore, the I–R–F structure is

useful in identifying interactions in the classroom that follow the ‘teacher initiation – students’ response – teacher follow-up’ pattern. Moreover, the IRF structure assigns a predictable pattern to classroom interaction. However, ‘interaction is in fact dynamic, fluid and locally managed on a turn-by-turn basis to a considerable extent’ (Seedhouse, 2004: 62).

On the other hand, those who support the use of the IRF structure as an analytical tool argue that when teachers deal with a large number of participants it is important to have ‘generic discourse structures’ and the IRF model would fit this requirement (Wells and Arouz, 2006). One reason for the selection of the IRF structure is with a large audience, participants should be oriented to the discussion ‘so that discussion could be orderly, ideally, and progressive’ (p. 421).

Another reason is that the teacher could make the learning process challenging by asking questions, encouraging students to answer them and in return giving feedback to the students (ibid). In addition, they argue that the IRF structure could be developed into a cohesive dialogue as well. They explain that it is important how the teacher handles the last move, the ‘follow-up’, believing in the ability of the IRF structure to generate sufficient interaction in the classroom. Nassaji and Wells (2000) articulate how teachers could work with the follow-up move. They advise that teachers could avoid giving evaluation in the follow-up move that would possibly suppress students’ participation; instead, they demonstrate, teachers could request, in the follow-up move, for ‘justifications, connections, or counter arguments and allow students to self-select in making their contributions’ (p. 401). Despite the different opinions, researchers generally agree that when the third move of the IRF gives feedback instead of evaluation the teacher could develop longer meaningful

interactions in the classroom. In this way teachers could maintain dialogic interaction in their classrooms.

Having seen some of the criticisms and counter arguments on ESA, now I move on to its application.

5.3.2 Application of ESA

Though the ESA approach was initially used in the school context later recent researchers have used ESA in the university setting also and found that the approach is sufficient to analyse the teacher-student interaction. For example, Basturkmen undertook several studies in university settings. In 2002 (Basturkmen, 2002) she analysed the patterns of discourse organisation in seminar-type discussions in a UK university seminars. The students were both NS and NNS, though the latter was a minority. In 2003 she focused on MBA discussion classes (Basturkmen, 2003), and also investigated the sequential patterns of talk in discussion in university classes using the construct of exchange structure (Basturkmen, 2000). Although in her studies students' contributions are higher compared to FAS, her attempt to use ESA for the analysis of her discourse supports the view that ESA could be applied to a tertiary level setting too. Moreover, Basturkmen (2003) explains:

As an approach to analysis of spoken interaction in the classroom, the construct of exchange structure was useful for analysis of discussion with the tutor, that is, dyadic talk in which one party was in a more privileged speaking position. Exchanges could easily be identified and these exchanges accounted for the great majority of the transcription. (p. 31)

She, however, warns that this ESA may not be suitable for a discourse which takes place in 'a student peer group', where there is no power imbalance or where 'no one assumes a leadership role' (ibid).

ESA, which carries the IRF structure as its main analytical tool, is considered to be limiting student participations with its controlled Initiation – Response – Follow-up sequence. However, one should take into consideration the fact that ESA is used to analyse the existing interaction in the classroom only, it is not the cause of the IRF interaction pattern, nor does it in any way motivate the teachers to use the IRF pattern. Further, ‘the IRE structure [...] simply presents a regularity to which the participants may or may not demonstrate their orientation’ (Mori and Zuengler, 2008: 18). Therefore, ESA is a descriptive mechanism only, but it should not be considered as a tool hindering successful classroom interaction. In addition, as explained previously, a small number of studies have demonstrated how the IRF structure could be handled to articulate more student contribution (e.g. Nassaji and Wells, 2000). However, the inability of ESA in terms of its capacity to describe the existing contextual details, including the social context, should be taken into consideration. In the analysis of classroom discourse one cannot interpret the meaning isolating the context from the discourse. However, ESA does not prevent such analysis either. For example, Scott et al. (2006) analysed each move in their discourse without just assigning the I – R – F structure only in a Brazilian secondary level science classroom.

Furthermore, Cohen et al. (2000: 73) claim ‘fitness for purpose’ should be considered. That means the method to be adopted suits the purpose. Therefore, to identify and analyse lecturer-student interaction, mainly the pattern of interactional exchanges in FAS discourse the ESA’s IRF structure may be able to provide a suitable framework.

Though the ESA is suitable to analyse the different moves of interactional exchanges, this analysis may not be sufficient to fulfil the objectives of the current study because identifying the mere structure of a lecture discourse does not give any idea of the

‘communicative’ value of the discourse (Mountford, 1975, cited in Coulthard, 1985: 142). The study aims to find what role the lecture discourse can play in relation to lecture comprehension and lecturer-student interaction. For this purpose, just an identification of different moves is not sufficient but one needs to have the knowledge of the overall discourse as well as the role played by the discourse in interactional episodes. Therefore, in the next section, I am going to discuss the important analytical components in order to design an analytical system by paying attention to the 2nd question.

5.4 Q2. What are the important analytical components of a lecture discourse and what is the relative importance of each of them in the literature?

In this study, in the process of finding an analytical framework to analyse the lecture discourse the focus will be based on three different layers. One is the lecturers’ questions which are the trigger for the development of lecturer-student interactions. The other one is the pattern of interactional exchanges that are developed as a result of lecturers’ questions, and finally the type of overall lecture discourse, which is built up based on the pattern of interactional exchanges. I will explain the relative importance of each component below. In this study, the interactional exchanges are called ‘episodes’ (as used by Wells, 1993; Mortimer and Machado, 2000; Mortimer and Scott, 2003; Scott et al., 2006), which are similar to Sinclair and Coulthard’s ‘transactions’. For Sinclair and Coulthard the transaction is deemed to be a feature of teacher style but was not considered as an analytical unit, while their analysis focuses at the basic level, moves. On the other hand, Wells (1993), Mortimer and Scott (2003), and Scott et al. (2006) consider the episode as an analytical unit and present a discourse pattern for episodes in the lessons they investigated, so that in this study the term ‘episode’ is preferred over transaction.

Teacher's questions, a major constituent of teacher talk, are important in determining the nature of the discourse (Chin, 2007) and also guiding students' learning (Edwards and Mercer, 1987; van Zee and Minstrell, 1997b; Sharpe, 2008). Similarly, the questions lecturers ask in lectures have a similar role in structuring the discourse pattern of a lecture. That means the kind of question they ask, and the effort they make in maintaining the discourse (or question and answer sequence) are important. Therefore, lecturer's questions that are able to generate lecturer-student interaction could be built into dialogic interaction. In lessons, dialogic interaction differs from interaction because interaction can take place as a one-to-one recitation script, limiting students' participation to answering only or without considering students' views in lessons, as stated in chapter 1. In contrast dialogic interaction gives equal roles to students in the classroom. I discussed this dialogic interaction in chapter 3 and also I am going to explain under 5.4.3. Hence, the dialogic teaching through its lecturer-student interaction could enhance the understanding of the subject knowledge of students, while assisting the development of students' communication skills. Therefore, it is necessary to find out whether the overall lecture discourse favours a dialogic interaction with its different discourse patterns.

Based on the foregoing argument, the three discourse components identified are lecturers' questions, pattern of interactional episodes and type of overall lecture discourse. Of these components, the elicitation move (*lecturers' questions*) of the lecturers contributes to the direction of the interactional episodes (*pattern of interactional episodes*) and in turn the interactional episodes decide the direction of the lesson/lecture (*type of overall lecture discourse*). Further, the objective of developing an analytical framework is to investigate if the lecture discourse contains dialogic episodes. Hence, it is believed that the focus on those three discourse

components may inform us about their benefits and their present status in FAS discourse.

In the next section, I focus on the review of literature on (1) lecturers' questions (2) pattern of interactional episodes (3) type of overall lecture discourse. The objective of this review is to investigate how other studies have dealt with these concepts and how an analytical framework can be designed for these components in this study.

5.4.1 Review of Lecturer's Questions

The importance of teacher's questions (or lecturers' questions) has been investigated both in ESL classes and content classes. Questions in the language classroom are used as a way of controlling the classroom discourse (Ellis, 1990) and the prevalence of a greater number of questions in the SL classroom leads to better exposure to the target language (Brock, 1986). Also, 'questioning is supposed to guide the learning and thinking patterns of the students, [and] reflect teacher belief of what counts as effective teaching and learning [...]' (Tan, 2007: 88).

Questions were categorised as 'closed' and 'open-ended' and display and referential (Chaudron, 1988). These categories are the most prominent types of questions in the language classrooms. Display questions ask the respondent for information already known by the questioner, while referential questions request information not known by the questioner (Brock, 1986). Further, there are many classification systems for classroom questions based on diverse criteria. Tan (2007) classifies questions based on the requirement of the cognitive level: lower order cognitive questions and higher order cognitive questions. Lower order cognitive questions are yes/no or display type questions, while higher order cognitive questions are open ended referential

questions. In addition, O’Keeffe (2005) identifies a question type called double questions which include two adjoining questions uttered one after the other.

It is generally believed that referential, open type questions or divergent questions request a longer response and high order thinking skills of the students. Brock (1986) also advocates that referential questions are more important than display questions for language development. Nevertheless, it is found that teachers preferred to ask more display questions than the referential questions in ESL classes (Long and Sato, 1983; Brock, 1986), content-based classes (Musumeci, 1996) and also in content classes (Morell, 2004). Based on the prevalence of more display questions, Musumeci (1996) argues that it is irrelevant to consider whether a question is referential or display but what is important is whether it is open ended or close ended. She believes that with open-ended questions a greater amount of oral output can be generated from students. Similarly, Morell (2004) also finds that referential questions, which are open-ended bring more contributions from students. Now I turn my attention towards further content classes.

Chin (2007) argues that in content classes questions are believed to contribute towards the meaning making process by way of teacher talk and teacher-student interaction. Questions have always been an important interactional tool used by teachers to activate and facilitate the learning process (Crawford Camicittoli, 2008). The types of questions lecturers ask may decide the nature of the discourse. If the questions are open and warrant students’ contribution they can generate a lot of interaction, ideas and finally lead to better understanding of the subject under discussion, whereas the questions which require only a short answer or yes or no answer would not be able to help build a discussion in the class. Chin (2006) asserts

that early studies on teacher questioning focus on the IRF pattern of discourse (e.g. Mehan, 1979; Lemke, 1990), whereas recent studies focus on students' construction of knowledge (e.g. Yip, 2004; Chin, 2007). Therefore, traditionally teachers ask questions to find what students knew. Any deviant ideas from the teachers' pre planned agenda is either rejected or discouraged. However, recent studies have shown that in content classes a question is a good way to introduce a problem and warrant the contribution from the students (Nassaji and Wells, 2000).

Even though researchers sometimes classify the questions in content classes using categories that are different from the ESL classes, the functions of questions remain more or less the same as that of ESL classes, as I explain below. Many of the studies that deal with content classes come from primary and secondary level content classes except Morell's (2004). Morell tried to identify four types of questions in tertiary level content classes. They are similar to the types found in the ESL classes: display, referential, rhetorical and indirect questions. Her rhetorical questions do not warrant a response from the students, while the indirect questions are similar to classroom management questions (e.g. 'Is there anybody who doesn't have this handout?' (p. 329), which requires a response not necessarily verbal (e.g. students raise their hands). As we saw earlier, Morell's study reveals that there is a higher number of display questions than the other three types in the university discourse she investigated. Nonetheless, she found that though there were only a few referential questions, they brought lengthy interaction or students' contributions.

Yip (2004) identifies ten types of questions under four categories used by trainee biology teachers in an L1 high school biology class. Those four categories are (1) lower order questions, (2) higher order questions, (3) motivation questions and (4)

conceptual change questions. Lower order questions are used for recalling facts and explanations, while higher order questions are used for analysis, evaluation and synthesis. Yip further explains that motivation questions could be used for focusing attention on a new topic. The category of conceptual change questions contains four divisions: eliciting, challenging, extending and application. The findings reveal that there are a higher number of lower order cognitive questions and only a few conceptual questions in the discourse. However, the context of the study is different from the regular classroom context as it was based on trainee teachers teaching students from year 9 to 11 and therefore his findings may not be suitable to regular classroom context.

Related to questioning in content classes, Bloom's taxonomy of educational objectives stipulates different types of cognitive domains. They are knowledge (test the memory, recall, recognise, etc.), comprehension (interpret, describe, etc.), application (problem solving, apply information, etc.), analysis (identify the reason behind), synthesis (create a new idea) and evaluation (develop opinion, judgment or decision). Krathwohl (2002) describes these educational objectives as a 'framework for classifying statements of what we expect or intend students to learn as a result of instruction' (p. 212). In addition, he further explains that this framework was mainly used to develop test items for students.

Chin (2007) investigates how teachers use questions in the class to scaffold students' thinking and construct scientific knowledge. In her study with grade 7 school children she identified four questioning approaches adopted by teachers. They are Socratic questioning, verbal jigsaw, semantic tapestry, and framing. All these questioning

techniques focused on how teachers use questions to guide students' thinking, develop a concept, etc.

In another study, van Zee and Minstrell (1997a) found how physics teachers use questions to guide student thinking. They work with a particular strategy called 'reflective toss'. This is a kind of a questioning technique that involves students in deeper thinking. Here the teacher, on receiving a response from students, redirects the students to think and elaborate the answer. This approach is found to possess three moves: student statement, teacher questions and student elaboration. Their focus is on the students' statement which might occur as a result of teacher initiation but the researchers have not focused their attention on the initiation moves nor do they explore the links between the initiation and student statement. Nevertheless, this reflective toss seems to be an efficient approach to make the students think and produce longer and deeper output.

With this review of questions, I move on to a brief review of patterns of interactional episodes, followed by the overall pattern of lecture discourse with a view to revisiting the discussion on questions later under question 3, when I design an analytical system for the FAS lecture discourse.

5.4.2 Review of patterns of the interactional episode

Sinclair and Coulthard (1975) demonstrated that a structural analysis of classroom discourse is possible where the different moves of the interactional exchanges are identified, mainly I – R – F, as shown in chapter 3. In addition, Mehan (1979) identifies a similar pattern of IRE, as I explain in section 7.2.4.2.

Many of the studies that dealt with primary level or secondary level school classroom discourse found that the pattern of discourse was a cyclical IRF structure. However, later several exemptions to IRF structure (or pattern) were analysed. For example, Mortimer and Scott (2003) found that their discourse contains the IRFRF form. When the teacher gives elaborative feedback (F) it is followed by another response from the student and continues. Similarly Scott et al. (2006) reported that when a prompt (P) is made, such as ‘that’s interesting, [and] tell me a little more’ (p. 612), instead of a feedback move, students tend to elaborate their responses further. This produces an I–R–P–R–P–R pattern. It is also noted by Scott et al. that some chains of interaction are closed by a final evaluation move from the teacher and some are open without a final evaluation. They are I–R–P–R–P–R–E and I–R–P–R–P–R respectively. As another strategy, the teacher could repeat a student’s comment as part of the feedback to encourage the students to continue, elaborate on the comment, or ask for elaboration (Chin, 2007).

5.4.3 Review of the overall pattern of lecture discourse

As this study aims to investigate the nature of lecture discourse and its benefits for developing students’ comprehension and communication, a need to classify the lectures at FAS into different categories based on the predominant discourse structures arises in this study too.

Usually lecture discourse is identified as monologic and dialogic (Nathan et al., 2009) or interactive and non-interactive (Morell, 2004). Also, some researchers use the term authoritative instead of monologic (i.e. Scott, 1998; Mortimer and Scott 2003 and Scott et al., 2006). The two concepts, dialogue and monologue, developed by Lemke (1990) are similar to dialogic and authoritative discourse identified by Scott (1998).

Scott reflects Bakhtin's authoritative and internally persuasive dialogue. The dialogic discourse takes place with the participation of both teacher and students. When the teacher is keen on accommodating the students' voice into the classroom discourse the classroom talk becomes dialogic, while in the authoritative discourse only the teacher's voice is reflected. One important consideration is that these two categories are not used to identify a single lecture as one of these, rather within a lecture, these two kinds of discourse are present. Scott considers that out of several differences that exist between authoritative and dialogic discourse, the core difference is based on the function of the discourse. The authoritative discourse focuses principally on the information transmitting voice and does not accept new knowledge. On the other hand, dialogic discourse involves several voices and accepts that new voices contribute to the act of developing meaning. Scott describes their function as:

In authoritative discourse the teacher's interventions are intended to convey information, the emphasis is on the transmissive function of teacher talk, whilst the dialogic function of teacher talk is realised as the teacher encourages students to put forward their ideas, to explore and to debate points of view. (Scott, 1998: 62)

These dialogic vs authoritative distinctions in science discourse were further studied by Mortimer (1998) and Mortimer and Machado (2000). Mortimer (1998) analysed the discourse of students' group discussion from a secondary level science classroom and found that the discourse contains both *authoritative* and *internally persuasive* discourse. These two are similar to *authoritative* and *dialogic* discourse identified by Scott (1998).

Mortimer and Machado (2000) studied the discussion between teachers and students from a chemistry class of a high school. Their main motive was to discover how students and teachers overcame conflict in the lesson through discursive strategies. In analysing the discourse, they found that there were two kinds of discourse in the class.

One is dialogic which featured the elaborative I–R–F pattern of discourse. When teachers give feedback (e.g. Can you explain it to me?) (2000, p. 441), which is not evaluative, students modify and extend their contribution. The other one is authoritative. In the authoritative discourse the teacher gives an evaluative comment so that the teacher controls the discourse, while the students’ voices are not considered and the interaction is not extended. The teacher controls the classroom discourse to disseminate the scientific knowledge. The resulting discourse is evaluative I–R–F with univocal function because only the teacher’s voice carries the authority and that authority is accepted.

Mortimer and Scott (2003) and Scott et al. (2006) identify a framework with five components to analyse the individual episodes of the L1 science lessons of the secondary school classrooms. The central component of their framework is the communicative approach by which they mean the overall pattern of the classroom discourse. This communicative approach is constructed based mainly on whether the teacher interacts with the students (interactive/non-interactive) and whether the teacher takes others’ view into consideration or delivers the lesson as a monologic (dialogic/authoritative). As a result they present four types of approach which they devise by combining the above mentioned two criteria: dialogic/authoritative and interactive/non-interactive, as given below so that the new approach seem to have a broader analytical coverage of lecture discourse on those two different dimensions. Scott et al. (2006) claim that by authoritative discourse they mean ‘the teacher’s *purpose* is to focus the students’ full attention on just *one* meaning’, while dialogic discourse ‘takes into account a range of students’, and others’ ideas’ (2006: 610, original emphasis).

Some others have considered interactive and non-interactive in a different way from the way that Scott et al. (2006) define it. For example, Morell (2004) counts the number of instances the students answered lecturer's questions and when that token is more than 30 she considers it as an interactive lecture and less than 30 as non-interactive. Her study was conducted at tertiary level in content classes with EFL students. Nevertheless, her criteria for the divisions lack a sound basis, because there is no justification for how and why 30 was chosen as a bench mark. Moreover, sometimes merely the number of interactional exchanges has less meaning than the length and the type of interactional exchanges created by such interaction. Some interactions can produce longer responses and also might tap into a student's analytical and synthesis skills, while some may be on the surface, to test just the memory of the students and produce short answers.

The work by Scott, Mortimer and colleagues seems reasonably appropriate as their proposed framework has been applied to different discourses as they continue to work in this area, although in secondary level science content classes (e.g. Mortimer, 1998; Scott, 1998; Mortimer and Scott, 2003; Scott et al., 2006). For this reason, I wanted to look into their approach in detail. The four categories identified by Mortimer and Scott (2003) are (1) *Interactive/dialogic* (teacher and students explore ideas together and generate new meaning) (2) *Non-interactive/dialogic* (in this approach the teacher summarises various ideas expressed by students previously, but finally the teacher establishes his or her own point of view) (3) *Interactive/authoritative*¹⁸ (the teacher leads the students to a point desired by him or her through a sequence of questions

¹⁸ Interactive/authoritative category of Mortimer and Scott (2003) is similar to non-dialogic interaction.

and answers) and (4) *Non-interactive/authoritative* (here the lecture is monologic and there is no room for any student contribution). Scott et al. (2006) use these four categories to analyse the different interactional episodes within a Brazilian secondary school science class lessons. They identify their episodes based on the change in the teaching purpose which is connected to a change in the ‘underlying pattern of interaction’ (p. 626). That means within a single lesson they identify several discourse patterns.

Though the model looks broad and seems to be able to generate a lot of descriptive data of classroom discourse, there are some ambiguous categories too. Out of the four criteria, the one which is ‘non-interactive/dialogic’ seems to be a confusing one from the way Mortimer and Scott define the elements. They define dialogic as ‘it takes into account a range of students’ and others’ ideas.’ That means to be dialogic students should have presented their views. Nevertheless, in their examples they quote an episode of a lesson (see the extract below) in which the teacher summarises the previous week’s lesson to the students as dialogic in which the teacher describes the different views students presented in previous classes. Based on their assertion they categorise the beginning of that particular episode (move 1) as ‘non-interactive/dialogic and the latter part of the episode (move 3) as ‘non-interactive/authoritative’. The latter category is not problematic according to their criteria because there is no interaction between the teacher and the students and also the teacher presents her own point of view. Further, they claim the move 1 as ‘noninteractive/dialogic’, and explain the reason that there is no interaction between teacher and students and therefore it is noninteractive, which is also acceptable. But the problem lies with their claim for ‘dialogic’. Their explanation is that the episode considers different views so that it is dialogic. That means they treat the summary of a

previous lesson as dialogic because of its content but not because of its function, whereas I consider the way the discourse was presented as authoritative. The episode goes like this:

1. Teacher: Now let's return to our question. Last week some groups were talking about there being two kinds of heat. . . hot and cold heat. In fact, this is not a new idea. In the history of science it's been around for a long time. Also, we often think about heat in terms of our sense of touch and we have distinct senses of hot and of cold. So, we naturally tend to accept that there are two opposite and separate things—hot heat, which warm objects have and cold heat, which cool objects have. But, we have to examine these ideas to see whether they can help us understand the notion of heat or not. So, there are two things. The first relates to what we call “cold,” or “the cold.” There is nothing which is absolutely cold is there? For example, melting ice.. we think it is really cold, but is it compared to ice plus salt? Is it cold?
2. Student?: No.
3. Teacher: No, it's warm. It's a source of heat. If you put both in contact, pure melting ice will pass heat to the ice with salt. What *is* cold? I can say that it is less hot and the opposite is also true, hot is less cold. Cold and hot are relative ideas, aren't they? It's a matter of comparing things. So, does it help to think about two kinds of heat, one associated with hot objects and the other with cold? There is a second point, an important one [....]. (Scott et al., 2006: 616)

Their claim is at the beginning (1) the teacher considers others' view (so it is dialogic) without having any discussion with them (so it is non-interactive). For me it is not appropriate to make such a claim for a number of reasons. The beginning of the episode is a summary and in a summary teachers revisit the previous content they taught in the lesson or the points students expressed. They do this in order to consolidate the important points. Moreover, usually interactive and non-interactive discourse is defined based on the students' active participation. It is not clear how they can consider students' previous participation as interactive. I consider that summary has only one discourse function that is summarising the discussion or teaching/learning process or as an introduction to the topic.

Further, Lemke (1990) considers the summary as one of the monologic strategies used by the teachers in their delivery of science lessons. Lemke identifies two kinds of thematic development strategies: dialogue and monologue strategies. The latter he considers important for logical exposition, narrative, selective summary, etc. Another

concern that needs attention in the current study is that Mortimer and Scott (2003) use their classification system only with one individual episode, but not with a whole lesson, or a lecture, whereas the requirement of the current study is to analyse a whole lecture, not an individual episode.

As an alternative, the MICASE categories of discourse could be reviewed. The MICASE corpus is a spoken language corpus of approximately 1.8 million words (nearly 200 hours). It analyses various speech events of the selected disciplines of the University of Michigan in Ann Arbor, Michigan (MICASE manual, 2002). The speech events include both classroom events (e.g. lectures, discussions, lab sections¹⁹, seminars, and student presentations) as well as non-class events (colloquia, dissertation defences, interviews, meetings, etc.) attended by both NSs and NNSs students.

The MICASE corpus identifies five categories to classify speech events (e.g. a lecture) with two extremes: highly monologic and highly interactive, as shown in the table below. Monologic lectures are without any interaction, whereas interactive lectures are characterised by student interactions. In between these two there are three more categories including a mid order category called mixed which lies in the middle. A description of the discourse categories are given in table 5.1 below as appears in the MICASE manual (2002). The different categories are identified based on the predominant mode of discourse. When a lecture is full of monologic talk it is highly monologic and the complete absence of monologic segments makes a lecture highly interactive. When a lecture has both features it is categorised as mixed.

¹⁹ Science and engineering classes have lab sections for the practical discussions and they may include problem solving sessions too. The discussion takes place between students (usually undergraduates) and instructors (usually senior graduates).

Table 5.1: MICASE classification system of speech events

Category	Description
HIGHLY MONOLOGIC	One speaker monopolizes the floor in a lecture, occasionally with a few questions or brief comments
MOSTLY MONOLOGIC	Primarily monologic discourse interspersed with some segments of interactive discourse
MIXED	No one discourse mode is predominant
MOSTLY INTERACTIVE	Primarily interactional discourse involving two or more speakers, interspersed with some longer segments of monologic discourse
HIGHLY INTERACTIVE	Highly interactional discourse involving two or more speakers, with shorter turns and no monologic segments

(Source: MICASE manual, 2002)

Though the MICASE classification arises from a context which is somewhat closer to the current study, they are applicable to speech events. The speech events include not only lectures but also seminars, lab sections, etc. Nevertheless, its classification system seems to be mostly characterising the lectures. For example, in their classification, *highly monologic* is defined as ‘one speaker monopolizes the floor in a **lecture** [...]’ (MICASE manual, 2002: 7). They themselves prioritise lectures in their classification, although it is supposed to cover a variety of speech events. Further, the lecture has been the pre-dominant mode of conveyance of knowledge in any academic institute, as Benson (1994) states ‘listening to lectures is a major part of the culture of learning’ (p. 182) and also the lecture remains an important teaching method in higher education institutions. Moreover, of the recorded 152 speech events of MICASE, 100 come from lectures (62), colloquia (14), seminars (7), lab sections (8), and discussion sections (9). All these refer to a kind of lecture. The foregoing review indicates that systems developed by both Mortimer and Scott (2003) and MICASE manual (2002) have merits and constraints and a further discussion of this will be taken up under question 3.

In this review, three kinds of discourse components have been selected as potential tools to analyse the FAS lecture discourse. They are lecturers' questions, patterns of interactional episodes and the type of overall lecture discourse. The importance of each of them is highlighted and in addition the existing analytical systems pertaining to these three components, and their merits and demerits are discussed. Table 5.2 shows these three components.

Table 5.2: Discourse components for the lecture discourse

Unit of analysis	Focus	Function
Initiation Move	Lecturer's Questions	How does the lecturers' question trigger/contribute to the development of interactional episodes?
Interactional episode	IRF structure or pattern of interactional episode (nuclear or extended IRF)	How does the interactional episode contribute to the dialogic teaching?
Overall lecture discourse type	Dialogic, monologic or mixed categories	How does the lecture discourse contribute towards the learning objectives?

Having completed the review of three important discourse components, the next stage is to go on to develop an analytical system for FAS discourse based on this review so that I focus on the third question.

5.5 Q3. How can an analytical system be developed for FAS lecture discourse components?

The FAS discourse was collected in a different context from other studies, especially in terms of the participants and setting. It is produced by tertiary level NNS students and NNS lecturers²⁰ who use English as a second language. Therefore, different systems are needed to analyse this lecture discourse, mainly for the lecturers' questions and type of overall lecture discourse, while the pattern of interactional

²⁰ None of them can be claimed to have near native English proficiency, as personally experienced.

episodes still remains the same and does not require a different system because IRF or its variants are suitable for FAS discourse. In the following sections, a discussion is carried out about the development of an analytical framework for those three kinds of discourse components: (i) lecturers' questions (ii) patterns of interactional episodes; and (iii) type of overall lecture discourse.

5.5.1 Developing an identification system for lecturers' questions

Having discussed various kinds of questions identified to serve different learning contexts at the beginning of this chapter, there is a need to make a classification system for this study which originates in tertiary level content classes with NNS lecturers and students who use English as an L2. Long and Sato (1983) have shown that in ESL classes teachers ask more display questions. Lynch (1991) states that it is the same for content classes, though in content classes the depth of the question could be higher in order to explore the students' content knowledge to build the concept. However, existing different types of classification systems are suitable for the ESL/EFL classes that deal with language teaching and learning. On the other hand, the systems that are found in the content classes are suitable for a discourse with L1 students. As the initial analysis of questions revealed, the questions in the FAS discourse arising from the NNS students and NNS lecturers are merely basic and directly functional with only a very few focussing on the development of cognitive knowledge or conceptual building. van Lier (1988) advocates that it is immaterial what type of questions are asked but what is important is how the teacher controls the classroom discourse with either display or referential questions.

In this study, therefore, attempts were made to find the function that was executed through lecturer's questions so that the categories to be developed were suitable to

capture the different functions of the questions. In tertiary level content classes, for example Morell (2004) classified questions based on ESL classes such as display and referential questions, but there were no question types to reflect the purpose of questions in a content class (e.g. to test how students apply their knowledge in a novel situation). Fortanet (2004) based on university law lectures distinguished questions as non-rhetorical and rhetorical. The non-rhetorical warrants an answer from students, while rhetorical does not. Usually rhetorical questions are asked and answered by the lecturers themselves, but these categories may not be suitable to address the purpose of questions.

Carefully observing the lecture discourse data occurring at FAS, the questions lecturers ask could be classified into four types: 1) Concept Development Questions (CDQs) 2) Knowledge Testing Questions (KTQs) 3) Knowledge Application Questions (KAQs) and 4) Classroom Management Questions (CMQs). Each of these categories is explained below. In the process of identification of these questions to check the reliability of the categories, a colleague of the researcher was asked to identify the questions in two selected samples (lecture transcripts – AS 3 and BT 3) after the process of identification had been explained to him. The categories identified were compared with the researcher for consistency. Even though there were similarities in the identified categories for the subject BT 3, in case of AS 3 the colleague has identified 2 questions as KTQs, while the researcher considered them to be KAQs. Later discussion and more information on the criteria of question types brought the colleague into agreement with the researcher.

These four categories have some conformity with the Bloom's taxonomy of educational objectives: knowledge, comprehension, application, analysis, synthesis,

and evaluation (Krathwohl, 2002). Of which Bloom's first three are considered to be the lowest and other three are the highest levels. It is assumed that when students work at the higher level they have mastered the lowest levels. That is 'mastery of each simpler category was prerequisite to mastery of the next more complex one' (Krathwohl, 2002: 212-213). For example, when students deal with the application level, it is deemed that they have already mastered the knowledge and comprehension levels. Nevertheless, not all of Bloom's categories are suitable to the present discourse. For example, the classroom management questions that are available in the present discourse are not part of Bloom's classification. The next section briefly describes these questions and also I further discuss their relationship to Bloom's taxonomy.

Conceptual Development Questions (CDQs)

These questions are asked by the lecturers as open-ended questions to get different views of the students in order to develop a particular concept or a theme. 'The teacher asks conceptual questions to elicit students' ideas and facilitate productive thinking, invites and welcomes students' responses and questions [...]' (Chin, 2007: 817). Also, it is believed that during guided discussions, teachers primarily ask conceptual questions to elicit student thinking (van Zee et al., 2001). These questions are similar to open ended referential questions and are also similar to Bloom's synthesis questions. e.g. What is quality?

Knowledge Testing Questions (KTQs)

Knowledge testing questions are used to check the students' subject knowledge that has been gained in the lectures. They are mostly display type questions and usually require a short answer. Also, they are similar to factual recall questions, which ask the

students to name, identify, recall, define, etc., and the emphasis is on memory or observation (Ellis, 1993). Many of the KTQs have low cognitive demand. This is also similar to Bloom's knowledge question category. e.g. What is biotechnology?

Knowledge Application Questions (KAQs)

These questions do not test the knowledge of the students but test how the knowledge could be applied to solve a problem. Usually these questions are used when the lecturers give tasks/worksheets to be solved in the class. This is similar to Myhill's process questions. Using process questions the teacher can check on the understanding of the learning process or students could explain their thinking (Myhill, 2006) e.g. How do you find the value of R?

It is, however, difficult to differentiate the questions from their appearance as KTQ or KAQ but it is from the subsequent function of the discourse we can categorise the question.

Classroom Management Questions (CMQs)

These questions are not connected with the teaching or learning of the direct content subject. They usually deal with management and organisation of related academic activities like submitting assignments, arranging a practical class, etc. (Myhill, 2006). They are similar to the classroom procedural questions (Richards and Lockheart, 1996). e.g. Did you submit the assignment?

Further, in the interactional exchanges many confirmation checks or clarification requests are found. They play a role in maintaining the interactional flow between the students and lecturers. A clarification request is a direct form of question or request to clarify the preceding utterance of the other speaker, while a confirmation check is

made to ensure that what is heard by the other speaker is correct. The latter is usually made by repetition of all or part of the other's preceding utterance through rising intonation questions (Long, 1981). Both these are known as elements of negotiating for meaning and are usually made by the lecturer to the students and rarely in the other direction in the observed lectures.

Having described four types of classification systems for questions that have been identified for the main study, the system to classify the interactional episode is described next.

5.5.2 Developing a classification system for patterns of interactional episodes/ exchanges

As we saw under questions 1 and 2, the interactional pattern could be nuclear or extended. The nuclear exchange is a three (usually) part exchange which occurs with I – R and F, but this move could be optional. Mehan (1979) explains these extended sequences which occur with an initiation and take several extended moves as a result of Feedback (i.e. can you elaborate further) given by the teacher instead of Evaluation (i.e. good). Nassaji and Wells (2000) also explain the nuclear and extended sequences. A nuclear exchange occurs with I and R, with an optional F. Several nuclear exchanges together make the extended sequence, and are called episodes in this study. Many of the studies that deal with primary level or secondary level school classrooms discourse were found to possess the IRF structure. However, later several exceptions to the IRF structure are analysed. For example, the IRFRF (Mortimer and Scott, 2003), and I–R–P–R–P–R (Scott et al., 2006) forms, as discussed earlier. Therefore, in the present study also the discourse pattern of interactional episodes and the underlying reasons for those patterns are analysed.

In the next section, I am going to talk about the types of interactional episode. These types of episode are used in the process of identifying the overall lecture discourse only, while the patterns we just discussed are used to describe the interactional episodes.

5.5.3 Developing a classification system for the types of overall lecture discourse

As we have seen in the question 2, different classification systems of lecture discourse are available. Nevertheless, the classification of discourse is carried out at different levels, mainly at episode level (i.e. Mortimer and Scott, 2003) and at lecture level (i.e. MICASE manual, 2002). An episode is a collection of exchanges, or sometimes a single exchange also makes an episode as explained above. At the same time, the classification of episodes and lectures are interconnected. One cannot classify the lecture discourse without identifying the type of interactional episodes, and their duration, etc. Only based on the predominant type of interactional episodes can one classify the lecture discourse as in the case of MICASE. Therefore, the interactional episodes in this study are classified based on the questions that initiated the episodes. Therefore, there are episodes initiated with CDQ, KTQ, KAQ or CMQ and similarly the episodes are identified as Concept Development Episodes (CDE), Knowledge Testing Episodes (KTE), Knowledge Application Episodes (KAE) or Classroom Management Episodes (CME). I will revisit these episodes after discussing the overall system.

The system to classify the overall discourse pattern of lectures borrows ideas from Mortimer and Scott's (2003), and the MICASE classifications. A detailed discussion of these studies was given earlier. Mortimer and Scott (2003) classify interactional episodes into dialogic/authoritative and interactive/non-interactive categories. Even

though the latter classification is widely used in studies (e.g. Scott and Mortimer, 2005; Mortimer et al. 2006; Scott and Ametller, 2007) its application is possible at episode level only, but not at lecture level. Moreover, as explained previously in question 2, the category called ‘dialogic/non-interactive’, as defined by Mortimer and Scott, is a confusing one. In addition, all these four categories are mutually exclusive as they are meant for interactional episodes, whereas a lecture might possess the features of two or more categories without fitting exclusively into one of these categories, because a lecture is a collection of different interactive/non interactive, or monologic/dialogic segments or episodes. For example, certain parts of the lecture may be monologic (i.e. summary), while others could be dialogic. Therefore, a classification system that is able to cover these differences is needed. The features of their classification system that could be borrowed for the proposed system are the dialogic /authoritative (monologic) divisions and the way they define the episodes. In addition, another advantage of their system is the argument that a lecture can be interactive but could still be authoritative or non-dialogic as called in this study. This concept can also be incorporated into the system which I propose.

MICASE (2002)

Category
Highly monologic
Mostly monologic
Mixed
Mostly interactive
Highly interactive

Mortimer and Scott’s (2003)

<i>Interactive/dialogic</i>	<i>Non-interactive/dialogic</i>
<i>Interactive/authoritative</i>	<i>Non-interactive/authoritative</i>

Figure 5.1: Comparison of MICASE and Mortimer and Scott’s discourse classifications

The classification system presented in the MICASE manual (2002), as we saw earlier, identifies interactive and monologic categories in speech events. In addition, the MICASE classification is applicable to whole lectures and it is similar to Mortimer

and Scott's interactive and non-interactive categories, but it does not consider the dialogic/authoritative categories, like Mortimer and Scott. The MICASE manual (2002) classification and Mortimer and Scott's (2003) appear above side by side in figure 5.1.

In MICASE there is a category called Mixed so that when a lecture shows both features of interactive and monologic it can be placed in the middle. At one end of its continuum it has monologic, while at the other end it has interactive on the assumption that interactive is the polar opposite of monologic. In addition, different categories are structured along a continuum so that a lecture can be fitted into one of these categories.

Even though MICASE uses interactive and monologic categories, the MICASE category 'interactive' would not address the purpose of the current research. That is, to identify the lectures that could promote dialogic teaching through students' contribution towards knowledge building. In addition, a lecture can be interactive with many KTQs but without any being useful for either knowledge building or giving enough opportunities for students' to produce output. This discourse is similar to the interactive/authoritative category of Mortimer and Scott (2003). Opportunities to produce output is important as Swain (1995) argues that output is believed to assist second language acquisition, as explained in the literature review chapter (section 3.7). Further, MICASE has not considered the dialogic value of the discourse, while dialogic is an important category under Mortimer and Scott's system.

Another problem with MICASE is the operationalisation of the MICASE categories. For example, one of the MICASE categories 'mostly monologic' is defined as 'a lecture which is primarily monologic discourse interspersed with some segments of

interactive discourse'. Here the word 'some' is an abstract property and it cannot be easily quantified looking at a lecture discourse. That is, 'some' does not describe what number or what duration. This confusion is applicable to other categories of MICASE too. Therefore, though features of MICASE seem to be a suitable classification system for the present lecture discourse, there are two kinds of inherent problems if one is to use the MICASE system. One is the lack of accountability of the dialogic discourse and the other one is the difficulty in the operationalisation of the MICASE categories. Hence, a slightly modified system would overcome these two practical difficulties and could yield a system that is suitable for the classification of overall lecture discourse at FAS.

In order to overcome the problem of the operationalisation of the MICASE categories, the total duration of interactional episodes could be considered. At the beginning the total duration of interactional episodes would be a suitable indicator to mark the extent to which the lecturers and students interact with each other. This is preferable to a classification system that uses the number of questions asked (e.g. Morell, 2004) because the number does not give a clear idea of the intensity of the interaction which takes place. In addition, to operationalise the MICASE categories some assertions are needed. The duration of the lecture hour at FAS is one hour and the total average talking time of the 12 transcribed lectures is 53 minutes. Considering 50 as the maximum duration of interaction that would possibly take place in a single lecture, five interactive categories could be assigned with five scales as shown below in table 5.3.

Table 5.3: Classification system for the FAS overall lecture discourse

MICASE categories	Value assigned with total duration of interactional episodes (minutes)
Highly Monologic	< 10
Mostly Monologic	10–20
Mixed Lectures	21–30
Mostly Interactive	31–40
Highly Interactive	> 40

Now based on the duration of the total interactional episodes of each lecture its overall discourse type could easily be decided. For example, if a lecture's total duration of interactional episodes is 15 minutes it can be classified as mostly monologic. However, now attention should also be paid to the second problem with MICASE – lack of dialogic value of the discourse. In order to consider the dialogic values within interactive lectures, a conditional sub category could be made within interactive lectures. The basic consideration is that for a lecture to be dialogic it should have interactional episodes of the concept development category. Concept development episodes (CDE), in comparison, have the potential to incorporate the students' views into knowledge building, although others too have some other communicative values such as a KAE. Therefore, a lecture which is mostly or highly interactive has a substantial amount of lecturer-student interaction. In addition, if the CDE predominates in the total interactional episodes, those lectures could be classified as dialogic or else they are interactive (or non-dialogic) only.

The new system developed for the current study has categories, similar to MICASE, from monologic to dialogic lectures and in between a category called mixed lectures. In addition, it has two more categories within the dialogic lectures: mostly dialogic and highly dialogic. These two would be alternative categories to both mostly interactive and highly interactive respectively. If a highly interactive lecture contains a higher duration of CDEs over other episodes, it is called highly dialogic. Similarly,

mostly interactive lectures as mostly dialogic, when CDEs predominate in their discourse, as shown in table 5.4 below.

Table 5.4: Classification system for the FAS overall lecture discourse

Duration of total interactional episodes (minutes)		Discourse category of lecture ²¹
<10		Highly Monologic
10–20		Mostly Monologic
21–30		Mixed Lectures
31–40	Other types of episodes predominates the discourse	Mostly Interactive
	CDE predominates the discourse	Mostly Dialogic
> 40	Other types of episodes predominates the discourse	Highly Interactive
	CDE predominates the discourse	Highly Dialogic

As a summary, the proposed system, similar to MICASE, has five categories: highly monologic, mostly monologic, mixed, mostly interactive and highly interactive. However, unlike MICASE, this study considers the dialogic teaching also as a key feature for successful lecture delivery and therefore, within the interactive categories it introduces two alternative categories. They are mostly dialogic and highly dialogic. In addition, they are decided based on the presence of CDE and other types of episodes, i.e. knowledge testing episodes (KTE), knowledge application episodes (KAE) or classroom management episodes (CME).

Even though in other types of episodes also, other than the dialogic, there are interactional exchanges the benefits of such interaction towards comprehension and language development is in question. For example, a knowledge testing question which leads to KTE makes students respond in one or two words and might not place a cognitive demand on students. Rather it tests students' memory and also most of the time it ends as one to one recitation script. On the other hand, the presence of CDEs

²¹ In this category monologic refers to non-interactive discourse, while interactive refers to non-dialogic discourse.

cannot be assumed to always bring lengthy answers from students, though using CDEs one can generate extended sequence of interaction, when other conditions are favourable (e.g. cooperation from students). The proposed classification system for the FAS discourse containing the three important discourse components is given below in table 5.5.

Table 5.5: The composite discourse components and their classification system

Discourse components	Classification system
Lecturer's Questions	Concept development questions; Knowledge testing question; knowledge application question and Classroom management questions
Pattern of Interactional episode	IRF/or their variants (IRFRF or IRPRPR)
Type of overall lecture discourse	Highly monologic; Mostly monologic; Mixed lectures; Mostly interactive /mostly dialogic; Highly interactive/highly dialogic

5.6 Chapter summary

In this chapter a review has been undertaken with a view to designing an analytical system for lecture discourse collected for the FAS discourse. The system developed to analyse the discourse contained three components as shown in the above table. In this review the relative importance of each of those components and a rationale for the system developed was also explained. Though this classification system has been developed for the FAS lectures, it is not necessarily limited to FAS and can be extended to other faculties of the university where the medium of instruction is English and also to other universities which have a similar situation to FAS, as I discuss in the discussion chapter. In addition, the data analysed using this analytical system can give more in-depth insight into the data collected through survey and interview.

CHAPTER 6 – FINDINGS: From Perception to Practice

6.1 Introduction

In the previous two chapters I focused my attention on selecting a suitable research methodology and an analytical system pertaining to the main study. In chapter 4, I showed that a mixed methods research approach is suitable for the present study. In addition, I described different research methods and research instruments relevant to the main study. In chapter 5, I discussed how the lecture discourse collected for the study can be analysed, mainly to investigate the presence of dialogic interactions.

In this chapter, the findings of the study are presented. In order to present the findings I am going to structure this chapter according to my research questions so that the data presented are concise and address directly the research questions. In this way, I can avoid repetition of information and also avoid presenting unnecessary data. More importantly being a mixed methods research study, I encourage data integration at the interpretation stage. That is, I explain how quantitative data are either corroborated or contradicted by qualitative data. Among the wealth of data collected from different sources, I am going to present the data that address the research questions; I present the findings relevant to the four main research questions and sub questions.

6.2 RQ 1. In ESL undergraduate Science classes what are the NNS students' and NNS lecturers' perceptions regarding students' lecture comprehension abilities?

Students' lecture comprehension abilities

As shown in table 6.1, students in the survey estimated their lecture comprehension abilities using a five point rating scale. These lecture comprehension scales were borrowed from Flowerdew and Miller (1992), reducing their 10-point rating scale to a 5-point scale. The reason for the reduction was to make it easy for students to answer. Fifty percent of the surveyed students estimated their lecture comprehension abilities

as average (category c), while 43% considered themselves to be able to understand almost everything from the lectures. Nevertheless, none of the students considered themselves either in the top or in the bottom extreme categories. Further, the mean value of the students' estimated overall lecture comprehension ability was 3.37. Additionally, in the interview students agreed that they had lecture comprehension problems.

Table 6.1: Students' lecture comprehension abilities as perceived by the students

Category	Percentage of students
a. I understand everything. I am able to follow the lectures from beginning to end with no listening problems at all.	0
b. I understand almost everything. A few items of vocabulary confuse me, but I can usually guess their meaning.	43
c. I am able to understand at least half of the main points and some of the supporting details of a lecture in English. There are usually many new words and expressions I do not understand.	50
d. I often get confused with a lecture in English. I am unable to identify most of the main points and supporting details. I usually only understand about 30% of the lecture.	7
e. I do not understand a lecture given in English	0
TOTAL	100

In the survey, when the lecturers were asked about students' lecture comprehension abilities, using the same categories in table 6.1, three of the four lecturers rated their students' lecture comprehension in the category 'understand almost everything' (b), while one lecturer considered them to have only average ability (c).

When the lecturers' responses were considered according to their subject, there were differences in their opinions, mainly among the biology lecturers. One biology lecturer (BL1) indicated that her students fell into category 'b' in the ability to comprehend lectures, whereas the other biology lecturer (BL2) pointed out that they

belonged to category 'c' (average ability), despite the fact that their students are the same.

Similarly, when the lecturers were asked about students' lecture comprehension abilities during the interviews, the opinions given by them varied. ML2 mentioned that it was more than 75% (equal to category b in table 6.1), while ML1 and BL1 stated it as more than 50% (equal to category c). Though BL2 did not mention any percentage, she agreed that her students had lecture comprehension problems. In the survey questionnaire all the lecturers, except BL2, claimed that their students understand almost everything so we would expect all three to have indicated more than 75% in the interview too. Therefore, one obvious result is both students and lecturers agreed that students had lecture comprehension problems, though their perception of the scale of the problem was different.

6.2.1 RQ 1.1. In ESL undergraduate Science classes what are the NNS students' and NNS lecturers' perceptions regarding the factors that influence students' lecture comprehension?

When the students rated the factors that influenced their lecture comprehension on a five point Likert scale, ranging from very important (=5) to not important at all (=1), almost all of them considered all the factors to be important/very important as indicated in table 6.2. Though 'speed at which lecturer talks' and 'ability to participate in classroom discussions' had lower values, they had only a slight difference from the rest.

Table 6.2: Students' reported values of different factors influencing lecture comprehension

Item	Mean value
a. Vocabulary knowledge	4.60
b. Listening proficiency	4.30
c. Speed at which the lecturer talks	4.17
d. Knowledge of the subject matter	4.23
e. Ability to participate in classroom discussion	4.17

When the students were asked to write any other factors that influenced the students' lecture comprehension, one third of the students mentioned that lecturers' lecture delivery style was important. This includes lecturers' pronunciation, explanation, lecture organisation, etc. In addition, of those students who wrote an answer to this question, one mentioned that he wanted lecturers to use the mother tongue, while another one requested group discussions.

During the interview also, the students stressed their previous opinion that lecture delivery, including lecture organisation, is an important cause of their lecture comprehension problems. Their explanations with regard to the above claim are presented below. Importantly, all three comments made by the students below refer to one lecturer.

- In xxxx [[name of the subject]] within a subject, she delivers many subjects. That is the problem. (BF3)
- [...] she touches on all sections so that it is difficult to understand. (BM1)
- Her lecture is fast; not organized; there is no outline. (BF3 & BF1)

Even though students claimed that lecture delivery style as a reason for their lecture comprehension problems, one mathematics student (MF1), in contrast, indicated that it was their own fault that they had comprehension problems. Her argument was that students failed to prepare at home before the lectures so they faced problem in understanding the lectures.

As reasons for lecture comprehension problems, lecturers identified students' listening difficulties, poor language proficiency and vocabulary problems in the survey. Further, they stated that students' failure to revise the lessons and irregular attendance at classes affected lecture comprehension. This last point corroborates the claim made by MF1 above.

The influence of students' language problem on lecture comprehension was later stressed during the lecturer interview also. BL1 explained that students learnt their entire school studies in the mother tongue but at FAS they needed to study in English, which was difficult for them. As a result, students wanted the lecturers to dictate notes for them, but the lecturers were unable to do so as it could affect students' learning skills. BL2 also expressed the same idea. She said 'they [[students]]²² want complete sentences from me so that they can memorise because in the private classes [[at their advanced level]] they got used to memorising only' (BL2, interview). She further mentioned that students rarely came to her to get any clarification of the lectures, but, she claimed, students came to her to ask only what questions she would set for the repeat examinations. She said that they never asked any questions in the class to overcome their comprehension problems either. ML1 and BL1 too reported that students rarely came to meet them to overcome their comprehension problems.

Apart from this, there were some other reasons reported by the lecturers as given below. The first one is relevant to students' own weakness (I), while others are connected with the subject content (II & III) and students' background knowledge (IV & V).

²² See the annex for a list of transcription conventions

- I. They need to study at home in order to understand the subject. It means they don't concentrate in the class. That is an important reason, because for comprehension concentration is important. (ML1)
- II. It depends on the subject taught. Some subjects are familiar and interesting and some are boring. Vocabulary also should be familiar. (BL1)
- III. The course units are not much connected to each other. So when there is more new information comprehension would be difficult. (BL1)
- IV. Students followed their whole school studies in the mother tongue. So they are not familiar with vocabulary. (BL2)
- V. Poor prior knowledge of the students in the subject makes learning difficult. (BL2)

Though students claimed that lecturers' lecture delivery was a reason for their lecture comprehension problems, lecturers did not mention it as a reason. On the other hand, students did not agree that their lower language proficiency affected their lecture comprehension, in contrast to the opinion of the lecturers. Students considered that their lecture comprehension problem is lecturer-dependent. They blamed some lecturers for not preparing the lessons well and not delivering them appropriately. But the lecturers considered this reason as subject-dependent, rather than lecturer-dependent. That is, when the subject is new and the students did not have any background knowledge of the subject it may be difficult to comprehend.

6.3 RQ 2. In ESL undergraduate Science classes how do the students attempt to overcome their lecture comprehension problems?

All the surveyed students admitted that they tried to solve their lecture comprehension problems in different ways as shown in table 6.3. The vast majority of the students (93%) reported that they discussed with their classmates, while some mentioned that they consulted the lecturer personally in the classroom when he or she came closer to them (37%). None of them selected the option that they discussed with the lecturer at the end of the class in the lecture hall. When the students were asked to mention any other ways that they tried to solve lecture comprehension problems, most of the

students (22 of 30) noted that they referred to books, while 14 of them said that they discussed with tutors²³ or demonstrators.

Table 6.3: Students' reported ways of solving comprehension problems

Reported ways of solving the lecture comprehension problems	Percentage of students
a. Discuss with the lecturer in the class at that time	7
b. Discuss with the lecturer personally when he or she comes closer during the lecture	37
c. Discuss personally with the lecturer at the end of the class in the lecture hall	0
d. Discuss with the lecturer outside the lecture hall immediately after the class	7
e. Discuss with the lecturer in his or her office (room)	20
f. Discuss with my classmates	93

When they were asked again to indicate the most common practice to solve their comprehension problems, nearly half of the students reported that it was discussing with their classmates, followed by referring to books.

During the interview also students reported similar results with regard to solving their lecture comprehension problems. More than half of the interviewed students reported that they liked to discuss difficulties with their classmates or tutors. They approached the tutors, when they were unable to solve the problem with their classmates. Approaching the tutors was more convenient for them than meeting the lecturers because they were their senior students in the previous year so students felt comfortable talking to the tutors and they could also use the mother tongue. Two other students stated that they consulted the lecturers. 'BM 2' stated that he asked the lecturers when they came close to him in the classroom. Another student (MM3) stated that he went to the lecturers' offices and asked for clarification. Later some other students also claimed that they sometimes went to lecturers with their comprehension problems. But such meetings were very limited. For example, the

²³ Similar to Teaching Assistants

biology students reported that they met their lecturers only twice during the last semester. In relation to this, the students also stated that they met only the friendly lecturers. I discuss students' fear of certain lecturers under emerging themes.

Although students in the survey mentioned that they referred to books to overcome their comprehension problems, in the interview students said little about their library usage. Moreover, there was no system to observe this within this study.

Three of the four lecturers surveyed agreed that the students tried to solve their lecture comprehension problems, while BL2 mentioned that they did not try to solve them. When those three lecturers were further asked what percentage of the students tried to solve their comprehension problems within the class itself, they gave three different percentages as given in table 6.4.

Table 6.4: Lecturers' estimate of the percentage of students trying to solve their comprehension problems in the class itself

Lecturer	ML1	BL1	ML2
%	<25	25–50	50–75

In the interview, those three lecturers were asked in which ways students solved their comprehension problems. Two of them (BL1 and ML2) mentioned that students discussed with them at that time or at the end of the class. Another lecturer (ML1) also agreed with this claim, but he said such a discussion was very limited and also stated that students liked to discuss their comprehension problems with their classmates.

6.3.1 Strategies students adopted to improve lecture comprehension

During the interview, students mentioned that they adopted the following strategies to overcome their comprehension problems. These strategies, along with student identification, are listed below. Some of them are similar to the students' suggestions of how they solved their comprehension problems.

1. Ask the lecturers when they come close during the lecture (BM1)
2. Ask the tutors for assistance (BM2)
3. Study at home (MM3)
4. Meet the lecturer individually in his room (MM3)
5. Ask for additional revision classes from the lecturers (MM1)
6. Ask the seniors to explain the difficult concept (MM1)

Though it is generally reported that students adopted these measures, the occurrence of some measures could not be confirmed when the lectures were observed. For example, the first one was observed only once in ML1 classes and there was little indication of No. 5. Further, there was no way to confirm No. 3, whether students studied at home. However, other measures were confirmed with other sources of data such as tutors' discussion and lecturer interviews.

6.3.2 Strategies lecturers adopted to enhance the lecture comprehension of students

Similar to students, the strategies lecturers adopted in lecture classes were investigated during the lecturer interviews and are presented below. Except BL2 others presented their views.

Ask questions suddenly of students so that students become more attentive and concentrate on the lessons. (ML1)

Explaining the concepts well and allow the students to ask question before the end of the class. Also ask students to come to the office to discuss their comprehension problems. Give vocabulary related assistance. Getting feedback is another strategy. (BL1)

Repeat the main points a few times and also give handouts and lecture notes so that students find it easy to follow the lectures. (ML2)

During the classroom observation it was possible to confirm ML1 and ML2's strategies taking place in their lecture classes; nevertheless, there was lack of evidence to support BL1's comments. It was found that students rarely gave any feedback in her class. Nor did they ask the lecturer any questions, despite she requested the students to ask questions. When crosschecked, BL1 also agreed that students rarely came to her office to discuss their comprehension problems.

6.4 RQ 2.1. What kind of support do students expect from the lecturers to solve their comprehension problems? RQ 2.2. What kind of support do lecturers provide?

Students and the four lecturers were asked to rate the perceived level of importance of different types of support to enhance students' lecture comprehension using a five point scale (5 =very important; 1= not important at all). Accordingly, students' and lecturers' mean values are given in the table 6.5 below. It is shown in the table that students and lecturers considered all the factors as important or very important as both their mean values were higher than 4. Using visual aids and improvement in the lecture delivery were a few of the important activities identified by both lecturers and students. Lecturers considered asking questions and answering questions were very important, whereas students estimated them as important too, but not to the extent of lecturers.

Even though students indicated that they needed the lecturer to use the mother tongue whenever they faced comprehension problems, lecturers estimated this to be less important than in the students' estimation. When students were asked to mention about any other support that may be needed from their lecturers for their lecture comprehension, many students stated that they needed tutorial support from the

lecturers in addition to regular lectures. In the tutorial they expected their lecturers to explain certain difficult areas or explain how to answer questions.

Table 6.5: Perceived importance of different ways of aiding comprehension

Ways of aiding comprehension	Students' mean value	Lecturers' mean value
a. Using visual aids (e.g. OHP, White Board, PowerPoint slides, etc.)	4.90	4.75
b. Providing a glossary (English–Tamil) for new terms	4.03	4.00
c. Providing a glossary in simplified English for new terms	4.27	4.25
d. Reducing the speed of speech when lecturing	4.10	4.00
e. Encouraging students to ask questions	4.13	4.75
f. Encouraging students to answer questions	4.20	4.75
g. Using mother tongue when students face comprehension problems	4.40	4.00
h. Repeating the key points when lecturing	4.63	4.50
i. Providing written outlines or notes	4.67	4.50

Another point for consideration is that not all of the forms of support students wanted were provided by the lecturers. For example, some lecturers did not use any visual aids in lectures or provide a glossary. They neither asked questions nor provided a written outline.

6.5 RQ 3. In ESL undergraduate Science lectures what are the NNS students' and NNS lecturers' perceptions regarding lecturer-student interaction (defined as the asking and answering of questions in lectures) RQ 3.1. What factors influence lecturer-student interaction?

In order to answer these research questions I have drawn data from two sources. One is from the survey and interview and other source is the emerging themes as identified purely during the data analysis stage. I have organised these two different sources of data into two sections: Section A and B respectively. In section A, I have arranged the findings under three themes: answering questions, asking questions and lecture delivery style. In this study, interaction was measured as either asking questions or

answering questions and therefore I have considered them individually to explain how each of them is influenced by different factors. The lecture delivery style is also important for its influence on interaction. At the end, I explain the perceived level of classroom interaction, suggestions to improve interaction and its benefits.

6.5.1 Section A – perception of lecturer-student interaction and factors that influence interaction.

6.5.1.1 Answering Questions

Almost all the students (97%) mentioned that they did not answer questions asked by the lecturer. The reasons given for not answering questions are presented below in table 6.6. The major reason (reported by nearly three-quarters of the students) was fear of giving a wrong answer. In addition, nearly two-thirds of them (63%) stated that they had language problems too.

Table 6.6: Reasons given by students for not answering questions

Reasons	%
a. Shyness to talk in the class	37
b. Fear of giving a wrong answer	73
c. Language problem	63
d. Lecturer gives the answer before I attempt to answer	7
e. Think that other students would answer	23
f. Not knowing the answer	47

When they were asked to mention any other reasons other than those listed above in the questionnaire, a few students mentioned that they did not answer questions because of the fear that their lecturers would penalise them in the examination, thinking that students are trying to ‘show off’ their knowledge. This fear is different from the fear of giving a wrong answer mentioned above and I will take up this point below.

The lecturers' point of view on answering questions by students was also investigated from the survey. Two of the lecturers (BL1 and ML2) stated that a few students readily answered questions, while ML1 and BL2 stated that even those few students who answered did so only after repeated requests. When the lecturers were asked about the reasons for students' limited answering of questions, the reasons given by them were similar to those given by the students such as shyness to talk in the class, fear that the answers would be wrong, students' language problems or not knowing the answer. Nevertheless, the lecturers did not mention the students' fear of them, which students had mentioned.

Interestingly, during the interview both Mathematics and Biology students stated that they did not answer questions for fear. It was revealed that their fear occurred mainly for two reasons. One was the fear of giving a wrong answer. This was reported by very few students (e.g. BM1 and MM1) in the interview, even though in the survey 73% of the students had selected that option. Students claimed that they feared that if they gave the wrong answer their colleagues would make fun of them outside the class, and at the same time they also worried that their lecturers would also think badly of them. Hence, this fear mainly refers to an embarrassing situation the students would need to face if they gave a wrong answer.

Another dimension of the fear arose, even though the students knew the right answer. Students feared that lecturers may penalise them, thinking that they had tried to 'show off' their knowledge, when they answered questions. Though the latter seems to be a misconception, all the students unanimously mentioned that it was quite risky to answer in a particular subject. MF1 reported that 'even if we know the answer we don't tell in xxxx [[name of the subject]]' (MF1, interview). Others also expressed the

same view. In this connection, an interesting personal episode was shared by a student (MM1). In the first year, the IT lecturer asked the students to run a program based on C+. Even though MM1 had successfully completed writing the programming path, before running the program he feared that the lecturer may misunderstand him, thinking that he was trying to 'show off'. Therefore, he deleted the lines in the programming and pretended not to know the program.

Despite this fear of lecturers, students reported that they answered questions in some lectures, mainly when the lecturers were friendly with them. The reason given by a student for answering questions was:

In xxxx [[name of the lecturer]] <L2 class> she writes one <L2 step> and asks the other <L2 step>. Even if our <L2 answers> were wrong she would not tell you are wrong. She would tell <L2 you are right > and would write the correct <L2 answer>. So we are not afraid to <L2 answer> in her classes. (MM1, interview)

This quote shares evidence that students felt free to discuss in classes conducted by a few lecturers.

In the interview, the lecturers' opinion on students' answering pattern varied. Only ML2 claimed that his students answered frequently, while others were on the negative side. Previously in the questionnaire survey, ML1 and BL2 claimed that students answered questions rarely. BL1, who earlier stated that her students readily answered questions, said only one or two students answered the questions because she claimed that even though they knew the answer they felt shy to answer. Similarly, ML1 argued that only those students who concentrated in the class answered well and his accusation was that students did not concentrate well. BL2 was also quite negative on this. She argued that 'even for a simple question they don't answer' (BL2). However, BL2 asked only seven questions over the observed lectures, of which five belonged to the rhetorical type. Her tendency was to give an answer with a wait-time of around 2

seconds, while others (e.g. ML2) maintained a wait of 5–7 seconds to get answers from the students, as shown in the Applied Statistics extract below.

ML2: now next I am going to teach you what is the definition of quality– definitions of quality what is quality? because– ok you can– this– theoretical definition is there when I ask you just what is quality what you can say? what is quality? [5] what is quality? [7]

MM5: better than [...]

In addition, all lecturers, except BL2, insisted on getting answers from students, directed question to individual students, repeated or paraphrased their questions, and went near students to elicit answers (i.e. ML1 and ML2). Later, BL2 agreed that she tended to give the answers without waiting for students' responses because she assumed that students may not answer.

6.5.1.2 Asking questions

The results of the survey showed that the great majority of students (80%) stated that they did not ask questions in the classroom. As reasons (see table 6.7), students stated that they did not ask questions because they thought that they could solve their comprehension problems with their colleagues (57%).

Table 6.7: Reasons given by students for not asking questions in the classroom

Reasons	Percentage
a. Language problem	47
b. Culture (attitude of not asking questions of the lecturers in the class)	57
c. Fear of speaking publicly	43
d. Thinking that the questions would be too easy for other students	30
e. Lack of opportunities given to ask questions	3
f. Thinking that I could solve the comprehension problems with my colleagues	57
g. Thinking that I would solve the comprehension problems with the lecturer later	20

An equal percentage (57%) of the students felt that among students there was a culture or rather a collective behaviour, developed mainly by senior students during the ragging period that prevented them from asking questions of lecturers in the

classroom. I explain ragging further under emerging themes in section B of this chapter. As another reason a significant number of students (47%) said that they had language problems. In connection with this, the students were asked about the language they preferred questions to be asked in. Two-thirds of the students preferred a mixed language of Tamil and English, while one-third stated that they preferred only English. Interestingly none of the students selected the option of the mother tongue (Tamil) only.

During the interview, students presented several reasons for not asking questions in the classroom. The reasons were similar to the reasons given for not answering questions and also their reasons confirm their previous views in the questionnaire survey. One is their poor language proficiency. Students were hesitant to ask questions fearing that their language may be wrong. One student reported the following:

If we want to ask questions in the <L2 classroom>, we need to ask in <L2 English>. If we want to ask in <L2 English> there will be language problem. So we avoid asking in the <L2 class> thinking that we can clarify it from the <L2 friends> in Tamil [[L1]]. (BM1, interview)

However, it was revealed that if some lecturers insisted on using English to ask or answer questions, students who had limited language proficiency kept quiet in the class, but later they approached the tutors or demonstrators to overcome their comprehension problems because they could conveniently use their mother tongue with tutors. Alternatively, students also approached the lecturers whom they could talk to in their mother tongue. For example, ‘MM3’ reported that understanding the subject was easy when the lecturers explained something in the mother tongue. In this connection, ‘BM2’ stated that some lecturers encouraged them to ask questions in the mother tongue, but students did not ask questions, because when the lecturers used English, they felt a kind of inferiority problem to use the mother tongue in the class.

During the observation of lectures there were only three instances of student questioning, including one in which a student asked questions of the lecturer using the mother tongue in ML1's class. Another two questions were asked when the lecturer (ML2) was near the students but the questions were not audible to the researcher. Later, students and lecturers agreed that students rarely asked questions of lecturers.

Another important reason for not asking question was fear. Just like the alleged fear of showing off and being misunderstood by lecturers when answering lecturers' questions, students feared asking questions of the lecturers. But the reason for this fear is unlike showing off, students feared that lecturers might think that the students were challenging their authority, when they asked questions. Also the students feared that this may lead to a kind of penalty (i.e. failing their examinations). All the interviewed students revealed that they were afraid to ask questions of certain lecturers, mainly from a particular department. Students believed that two or three students failed their examinations because they asked questions of those lecturers. I revisit this point again under emerging themes.

Most of the misconception and fear seemed to arise as a result of the ragging that existed in the faculty. Students (initially MF1 and later others from the group) quoted an incident which took place while they were juniors. A female student asked a question in English of a lecturer in the class during the ragging period. This was brought to the notice of the seniors and because of this act, that student was subject to severe ragging, particularly for asking a question in English. Therefore, students said that they did not dare to ask a question again in the classroom. However, students agreed that there are a few seniors who encouraged them to get the help of the lecturers too. MM1 stated the following:

Many of them said that. Don't ask questions. Don't <L2 correct> the <L2 lecturers>, you will be <L2 noted²⁴>, etc. At the same time, there a few who advised us not to fear and asked us to go to <L2 lecturers> to solve our <L2 problems>. (MM1, interview)

Even though students claimed that discussing with their colleague was a reason for not asking question of lecturers in the classroom later in the interview it was found to be the students' fear of discussing with their lecturers that made students talk to their classmates.

In the survey, the lecturers were requested to indicate what percentage of the students' asked questions in the classroom. Two lecturers (ML1 and BL1) stated that 25–50% of their students asked questions in the classroom, while ML2 and BL2 stated that it was less than 25%. This result should be more or less the same as the one given in table 6.4 in which lecturers reported their perception of the percentage of students who tried to solve comprehension problems in the class, on the assumption that if students wanted to solve comprehension problems they should ask questions. However, except BL1 who claimed 25–50% in both instances, the results for the others did not tally with the other data. BL2 earlier claimed that students did not try to solve their comprehension problems, while ML2 stated that 50–75% tried to solve.

The reasons given by lecturers for students' lack of questioning were somewhat similar to those reasons given by students. They were: students' language problem, fear of asking questions, and also thinking that they could solve their problems with their colleagues later.

Similar to answering questions, students' also asked very few questions, as per the responses obtained from the lecturers during the interview. BL2 maintained that

²⁴ Noted is used when someone is carefully observed by others (i.e. authorities) for committing an undesirable act.

students did not ask any question in her classes, and BL1 also had the same opinion.

She stated:

Even though we have given enough time for them to come and meet us even in the class we are motivating them to ask questions they are not asking questions. (BL1, interview)

ML2, who previously claimed that his students answered well, mentioned that his students asked questions but not 'up to the level' he expected (ML2). He said that he expected more questions from them. In the survey, he mentioned that less than 25% of the students asked questions.

Even though lecturers mentioned fear and language problems as reasons during the survey, in the interview, they pinpointed the reason behind students' fear. They agreed that the fear is caused by ragging, and this prevents students from interacting with lecturers. ML1 claimed that seniors misguided the juniors. He said:

Seniors have some philosophies. Don't ask questions, don't discuss, etc. They might have used it long ago but it is not applicable now. (ML1, interview)

I further expand this discussion under emerging themes in Section B. Next, I am going to discuss another factor that influenced classroom interaction, the lecture delivery style.

6.5.1.3 Lecture delivery style

As part of the classroom observation, I focused on the lecture delivery style of the four lecturers and each of their four lectures for this analysis. I used a checklist on lecture delivery style, which consisted of statements to assess the lecture delivery during three stages of the lecture: commencement, presentation and ending. In addition, the occurrence of classroom interaction (asking questions and answering questions) was also taken into consideration. Although seven other lecturers were evaluated, they were not included here for comparison as only a single lecture

delivery was observed from each of those seven lecturers and five out of those seven lecturers were junior lecturers. A summary of the checklist pertaining to the lecture delivery is presented in table 6.8. During these three stages, I considered in what ways the lecturers provided assistance for students in lecture comprehension, mainly in terms of the opportunities which allowed them to interact.

Table 6.8: Summary of observer's checklist on lecture delivery

No	Item	ML1	BL1	ML2	BL2
	Commencement of lecture	x= not held 1, 2, 3 or 4 = number of lectures in which the activity was held			
1	Commences the lecture with an informal chat and greetings	x	2	4	2
2	Makes a link with the previous lectures	2	4	4	3
3	Gives an outline of the lecture for today's class	1	2	3	2
4	Distributes handouts/ notes/ print-outs of PowerPoint slides (delete inapplicable one/s)	x	2	4	2
5	Provides the glossary/ explains the key words in the mother tongue (delete inapplicable one) (glos = provided glossary / L1 = explained in L1)	1-L1	x	x	4 - L1
	Presentation				
6	Uses visual aids (OHT / PowerPoint / White board) (delete inapplicable one/s) (PP=PowerPoint; WB=whiteboard)	WB	WB	WB OHT PP	WB
7	Dictates notes	2	2	x	2
8	Repeats key points	3	4	4	4
9	Uses mother tongue when students face comprehension problems	2	x	x	2
10	Writes notes on the board (key =only key words and sentences)	3/key	x	x	3 /key
11	Walks around the classroom	4	x	4	x
	Interactivity				
12	Directs questions to individual students	2	2	4	x
13	Asks questions to the whole class	4	4	4	2
14	Repeats questions	4	4	4	2
15	Allows students to work in groups or pairs	2	x	2	x
16	Gives enough time to students to answer questions	4	4	4	x
	Ending of lecture				
17	Welcomes questions from students	x	3	4	x
18	Briefly summarises the main points	x	x	4	x
19	Gives students reading tasks for the next lecture	x	2	2	2

During the lecture commencement stage, BL2 and ML2 commenced all four observed classes linked to the previous lessons, but except ML2 others barely gave an outline of the lecture before they commenced the lectures.

During the presentation stage, the whiteboard was the most commonly used visual aid by all the lecturers, and only ML2 used other aids such as multimedia and OHP. Use of these equipment was not without its problem. BL2 raised her concern for the difficulties in arranging these visual aids for regular classroom use, though she does not use them in her classes. ML1 also expressed his willingness to use them, while he was concerned of the extra time needed for the preparation.

Of all the lectures, in ML2's classes students were found to be readily answering questions, while such answering was lower in BL2's classes. Even though students usually answered in one or two words, ML2, whose topics were of a more general nature, attempted to make the students give somewhat lengthy answers (3–5 words), as shown in the lecture discourse findings section. Even though BL2 asked a few questions, she did not wait for students to answer. Another consideration was that she directed the questions to the whole class rather than to individual students so students did not make the effort to answer. In the case of other lecturers, when no one answered questions, they asked individual students to answer or came closer to students to get the answer. In this way, they motivated students to answer.

During the ending stage of the lectures, BL1 and ML2 welcomed questions from the students. ML2 summarised the main points discussed in all four lectures, while BL1 did that in only one of her lectures.

Of all these four lecturers, ML2's lecture delivery seemed to favour lecturer-student interaction to a certain extent. His commencement, presentation and ending of

lectures reflected student centred teaching that involves students in the classroom activities. For example, during the commencement stage, he brainstormed with the students on the topic to be covered, asked several questions and insisted on getting answers from the students, welcomed questions before the end of the class and finally summarised the main points. Further, it was mentioned previously that students liked certain lectures and interacted well in those lectures and ML2's lectures belonged to that category. Even though BL1 also has some features of the interactive style of delivery (i.e. brainstorming), compared to ML2's observed classes, they were not frequent.

Other observation data on lecture delivery style and students' classroom behaviour

Most of the regularly observed 24 lectures in FAS were monologic as indicated earlier. In addition, almost all seven other additionally observed lectures were also monologic (e.g. climatology and chemistry), following the highly monologic content transfer student beneficiary approach, which I explain later in this chapter.

It was identified that students found it difficult to take down notes when the lecture delivery followed the standard way. On the other hand, they felt easy to take down notes when the lecturers dictated notes. The problem students reported in relation to this was that they were confused whether to take down notes while the lecturers talked or to wait until the lecturers asked them specifically to take down notes. The reason for this confusion is likely that they have been trained to be passive by other lecturers through the above mentioned 'highly monologic content transfer student beneficiary approach' and may also partly due to their limited listening and note taking ability, as reported by both the lecturers and the students.

Another observation is in the lectures conducted by BL2 students did not attempt to answer the questions. In the interview students reported the reason for this. They assumed that the lecturer would answer the question herself as she usually asked only rhetorical questions.

Peer interaction was observed in the lectures in which the lecturers gave some tasks to be completed in the class, during which the lecturers encouraged the students to discuss with their colleagues. However, it was apparent that students used L1 when they engaged in this kind of activity. Further, it was noted that the same students answered the questions in the AS and PH subjects and within the limited observation it was also noted that most of the time male students volunteered to give answers in those two subjects. Further, certain other students continued to be silent in all lectures irrelevant of the subject taught or the lecturer who handled the class.

Another interesting finding was that when the lecturers were friendly students went to the extent of indicating the mistakes the lecturer made (e.g. in optional electricity subject) or contributing to the discussion by indicating the following steps in solving a problem, despite their claim for fear of certain lecturers. It was observed that students were found to be asking questions in L1 in the classes delivered by ML 1 and ML 2, both of them were treated as friendly with students. In addition to these classroom interactions, students stated that they talked to lecturers who teach other stream students also with regard to some general issues. Two of the interviewed biology students mention:

The physics lecturer behaves friendly not only with the physics students but also with us so that we don't have any fear to talk to him. (BM2, interview)

We used to meet him during the ragging period. He talks nicely. (BM1, interview)

6.5.1.4 Classroom interaction

Level of classroom interaction

When the students were asked whether they were satisfied with the level of interaction in their lectures, 83% of them stated that they were not satisfied. Previously, a similar percentage of students had stated that they did not ask questions in the classroom. When the lecturers were asked whether they were satisfied with the level of interaction in their lectures, two of the four lecturers (ML1 and BL2) stated that they were not satisfied with the present level of classroom interaction.

Improving classroom interaction

Following the findings on lecturer-student interaction, suggestions to improve the existing level of lecturer-student interaction were sought. All the students, irrespective of whether they considered the level of interaction satisfactory or not, gave their opinions. The opinion of students and suggestions given by the lecturers are given in two separate columns in table 6.9. In addition, when both lecturers' and students' suggestions were similar they are presented opposite each other.

Table 6.9: Suggestions to improve interaction

Students' suggestions (Number of students suggested this opinion is given within bracket)	Lecturers' suggestions
Lecturers should be friendly (14)	
Improve language and get the support of the English staff (4)	Introduce subject specific lessons in English classes
Lecturers should encourage us to speak, ask questions or discuss the things (11)	Tutorial support / Introduce lecture break (give them a break after teaching a concept and allow them to discuss or describe about it)
The culture that prevents students from talking should be removed / build an understanding between lecturers and students (5)	
Others	
Give opportunities to talk in mother tongue (1)	
Link with the practical knowledge (1)	Make textbooks and CDs available so that students can learn at their own pace.

Of the suggestions made by students, lecturer friendliness emerged as an important reason for students in enhancing the classroom interaction, as nearly half of the surveyed students mentioned this. Other than this, lecturers' encouragement and opportunities to talk in the classroom were also considered to be important by students. Another suggestion made by the lecturers was motivating the students to talk in the classroom. For example, a lecturer mentioned that a lecture break, in which students were allowed to discuss the lesson just learnt, could be introduced to improve classroom interaction.

Advantages of classroom interaction

As advantages of interaction students reported that those lectures that had a higher level of lecturer-student interaction (e.g. ML2's lectures) were easier to understand, interesting and also helped them develop their personal skills. They also mentioned that they felt confident to talk in those classes. However, even though students stated that when lecturers asked more questions they interacted more, it was not the case in each lecture. On the contrary, students did not answer or were very reluctant to answer in some lectures, despite the fact that lecturers asked questions. The same students pointed out that they answered or asked questions in some other lectures. As I explained previously, the fear of answering was a reason for not answering in certain lectures and this fear emerged as a result of ragging and the subsequent concept the senior students created of lecturer friendliness.

6.5.2 Section B – Emerging factors to influence lecturer-student interaction

During the data analysis stage several emerging themes were identified and of them I present two themes that influenced the lecturer-student interaction in FAS lectures.

They are alleged fear for certain lecturers, and the influence of senior students through ragging.

6.5.2.1 Alleged fear of certain lecturers

It was revealed during the interview with the students that their fear of certain lecturers influenced the behaviour of the students with regard to lecturer-student interaction. I have already mentioned that the students feared either asking questions or answering questions in certain lectures. Even though one reason for this was ragging and the misconceptions developed as a result of ragging, students' feared that the lecturers, particularly from one department, would penalise them, not only for asking questions but also for answering questions, and this view seemed to be strong and unanimous. With regard to this claim about these lecturers, they stated the following:

As far as our subject combination is concerned we fear of only xxxxx [[name of the subject]]. (MM1, interview)

We ask all the lecturers except the lecturers in the xxxxx [[name of the subject]] unit to overcome the comprehension problems, (MF1, interview)

In the xxxxx [[name of the subject]] we tell the answers to the one next to us but not to the lecturer. (MM2, interview)

In these quotes, the subjects refer to the courses offered by a particular department. In the department there were two lecturers and two tutors. Hence, the comments made by the students referred to the lecturers. All the interviewed students had a unanimous view on this and quoted different incidents their seniors had experienced with those lecturers, as I mentioned earlier under RQ 3 and 3.1. In addition, according to the students, there were only very few lecturers in the latter unfriendly category as they stated:

This happens due to the behaviour of one or two < L2 lecturers>. Our xxxx [[name of the lecturer]] is not like that. There are many such that [[good lecturers]]. One or two < L2

lecturers> for their benefit keep this tradition. Our seniors tell that they will penalise us if we ask questions. (MM2, interview)

ML2, who was the dean of FAS at that time, was asked whether he was aware of these student claims. He agreed that there were such claims among the students and he also explained the reason for this behaviour. He assumed that in the department there were only junior lecturers, so they may have acted without any guidance from senior staff, which could have been against the interests of the students, though the extent of their action was not known to anyone, he claimed. Therefore, whether the lecturers really failed or punished the students remained unresolved. It was beyond the focus of this study and against the ethical considerations to investigate this issue further.

6.5.2.2 Influence of senior students through ragging

It was also identified during the course of the interviews that senior students exerted a considerable influence on junior students through ragging. Ragging is ‘a ritual which has been in existence throughout the history of university system’, (Karunatilake, 2008: 18) and is practiced in Sri Lanka as well as other Asian universities. Ragging is a kind of mental, and most of the time, as far as the male students are concerned, physical abuse. Karunatilake claims ‘ragging has become more violent in contrast to the way it was exercised in the past’ (p. 18).

At FAS, students reported that ragging lasts for a period of nearly a semester, though this duration may vary from faculty to faculty or by university. During the ragging period the second year students (or seniors) verbally abuse the first year students (or juniors) or may ask the juniors to perform some physical activities too, some may be funny (e.g. salute the seniors) and some are hard (e.g. push ups). BM1 mentioned that though he liked singing songs for ragging, he said that he experienced ‘torture’ in the

form of ragging, which led him to think of even giving up the course and going home. It was further revealed by BM1 that the senior students hit him in the bus while he was travelling to the university because he failed to offer his seat to the seniors. BM2 added that ragging takes place in student accommodation and also in and around the faculty. He also mentioned that the seniors physically attacked him in the hostel because he disobeyed the seniors' orders while on campus. It is also worth mentioning that in 2010 three seniors were suspended from their course for three weeks for physically attacking a junior student who was subsequently hospitalised. Similarly in 2011 another three students were withdrawn from their campus accommodation for attacking a junior student in a 'Ninja style attack' at midnight when the student was walking to the accommodation from the bus stand (discussion with the senior student counsellor of the university, September 2011). Moreover, presently (November, 2011) entire second year students have been suspended from attending lectures due to their involvement in ragging. Gunatilake (2011) also describes how the raggers perform their physical torture against the juniors. For example, she explains that the juniors have to perform difficult exercises in a basketball court from 12 noon to 2.00 pm without any shoes or crawl on their bellies for more than a mile.

Based on discussions with students, seniors' influence on students' educational activities can be broadly divided into two. One is that they gave junior students advice and persuaded them to listen to their advice. Even though this advice was usually against the interests of the junior students, they were not in a position to understand that it was against their interests at the time of ragging. Another one is that they directly threatened the students not to be involved in certain activities. In the latter case, the students were aware that failure to obey would lead to physical harassment.

On the advice side, the seniors told the juniors that if they tried to talk to lecturers they became noted so that lecturers may fail them in the examinations, as reported by BF1 and MM2. In addition, seniors cautioned the juniors not to ask questions in class or even answer questions raised by lecturers. If they wanted to answer questions, MM2 reported, they should do it only after several requests had been made by lecturers. This negative approach to asking questions or answering questions was found to be selective. That is, students should not answer or ask questions in certain lecturers' classes, seniors advised. Students stated the following:

Our seniors have told me that if certain lecturers ask questions you should not answer. (BM1, interview)

[..] even if we know the answer. (BM2, interview)

[..] not in everyone's lectures but in a few lectures. (BF1, interview)

Not all the seniors seemed to give this kind of advice to students. Students mentioned that there were seniors who concentrate on studies and advised the students positively. That is, they encouraged students to discuss their comprehension problems with the lecturers. In addition, students have realised now that those seniors, who advised students not to approach the lecturers, did not advise it in the interests of the students. This advice seemed to have extended to writing answers in the examinations also. One student said:

We should not write answers using our <L2 complete knowledge>. (BM1, interview)

On the threatening side, students reported that seniors warned the students not to use English in the classroom, use the library during the ragging period, or carry exercise books, etc. (BM1 and MM1). It was already described under the subsection 'asking questions' how a fellow junior female student was subject to severe ragging for having asked a question in English of a lecturer in the class during the ragging period. Therefore, students said that they feared asking a question again in the classroom.

As a result of these restrictions and harassments, students sometimes stayed away from class, fearing that they would be subject to ragging if they were caught, or they tended to remain passive in lectures. Therefore, in both ways, either through advice or threats, students were affected.

Lecturers' views of ragging

As far as the lecturers were concerned they also realised the influence of ragging on the students' learning activities. All four lecturers unanimously stated during the interview that seniors gave unwanted and unrealistic advice to junior students. For example, as mentioned earlier, ML1 stated that the seniors try to implement unwanted rules (e.g. do not ask questions) on students, while BL2 mentioned they influence students to the extent of subject choice too. Nevertheless, the lecturers did not mention any fruitful measures that have been implemented by the lecturers themselves or the administrators to curb ragging in the faculty.

6.6 RQ 4. To what extent does lecturer-student interaction occur in FAS lectures?

This RQ describes the findings from the lecture discourse analysis. The lecture discourse was analysed for three important discourse components: lecturers' questions, patterns of interactional episodes and patterns of overall lecture discourse. I present these three components under three discourse components. Further, extracts of lectures that exemplify these three components are selected and presented.

6.6.1 RQ 4. To what extent does lecturer-student interaction occur in FAS lectures? RQ 4.1. What types of questions do lecturers (or students) ask?

The questions that initiated the interactional episodes only (or an exchange) were attended to in this study, even though there were questions in the middle of episodes.

This was because the initiating questions mainly decide the underlying role of each interactional episode, and therefore they are considered more important than the ones that appear in the middle. However, there could be a possibility that a lecturer could initiate an interactional episode with one type of question, but he or she might change the discourse pattern into another type by asking other types of questions in the middle. Careful scrutiny of the episodes did not bring such a situation. In addition, the interest of the study was the overall function of the discourse and it did not change throughout, and therefore the idea of going by the initiating question was suitable throughout the analysis. Further, though there were clarification requests (CRs), or other probing questions, they were only following up on the initiating question as observed in the FAS discourse. That is, if discourse was initiated with the aim of developing a concept all the other following initiation moves were found to be as supporting moves towards the objective of developing the concept. This further endorsed the decision to select the initial question of any episode. The types of questions that initiated the interactional episodes and their numbers are given below in table 6.10.

The most predominant questions asked by the lecturers were Knowledge Testing Questions (KTQs). They are considered to have no cognitive value, rather they are tests of the students' memory and recall ability. They were followed by Knowledge Application Questions (KAQs), of which the majority were found in the Applied Statistics lectures, in which the lecturer gave tasks based on the theory they had learnt in the class. Concept Development Questions (CDQs), which are believed contribute to the development of the conceptual knowledge of students (Yip, 2004) were very few in number (only six). Examples for different questions can be found with the interactional episodes in the next section.

Table 6.10: Types of questions across all 12 lectures

Types of questions initiated interaction	Number
KTQ	28
KAQ	20
CDQ	6
CMQ	3
Total	57

Lecturer initiated questions and student initiated questions

It is a notable point that all these interactional episodes were lecturer-initiated interactions, except one instance in which a student made a clarification in L1 of the lecturer to overcome his comprehension problems. Though there were two other instances of students' questions, they were not audible as the students asked quietly when the lecturer went near them. In this particular instance, in fact, initially the lecturer had asked the student calling his name if he had any problem, upon seeing him trying to say something. This had acted as a trigger for the student's question. The lecturer also used L1 to respond to the student as given below in the extract of the episode:

ML1: what [[text omitted – name of the student MM7]] [...] what here↑? if you have any additional suggestion please

MM7: [[clarifies with the lecturer in L1 when the lecturer was near the student]] phase two <L1 vil oru> (one at) parallel <L1 warAthuthAne> (a parallel won't come in Phase two?)

ML1: no– no– no– no

MM7: L phase two <L1 warathu ippa> (won't come)

ML1: when we– when we connected– like– this is like a single circuit right↑? <L1 Athila kulappam ontru irukkuthAn AnA ithula illai> (there is a chance for confusion there but not here). Ean entru theriyumA↑? (you know why) <L1 Neenga> parallel <entru ninakkeiriyal> (you think it is parallel). <L1 Ithu oru (this is a) single circuit [.....]>

6.6.2 RQ 4. To what extent does the lecturer-student interaction occur in FAS lectures?
RQ 4.2. What patterns of interactional episodes are found?

Interactional episodes (also called episodes in this text) were identified in the transcribed lectures. We have already seen in chapter 5 how the interactional episodes are identified using the types of question. For example, when an episode commences with a CDQ it is called a concept development episode.

The duration of each interactional episode in individual lectures was calculated manually as they were played back using the Sound Scribe. Types of episode were also identified in each lecture as concept development, knowledge testing, knowledge application or classroom management. I exemplify each pattern below. It was found that Animal Physiology lectures contained a lower number of episodes, though they had the highest number of words per lecture. Out of the three Animal Physiology lectures, there were only nine instances of interaction between the lecturer and students and those interactions lasted for a period of only around five minutes for all three lectures. The highest total duration of interactional episodes was found in the Applied Statistics lectures. All those three lectures had around an hour of interactional episodes as shown in table 6.11 below.

The number of interactional episodes varied across individual lectures. The lowest was found in an Animal Physiology lecture (AP 3), while the highest number of episodes (eight) was found in five lectures. Further, there is no correlation between the number of interactional episodes and the total duration of episodes. For example, both AS 3 and AS 4 contained eight episodes but the duration of the episodes were 23.10 and 11.10 minutes respectively because the interaction was dependent on the contribution of both lecturers and students towards the discourse. Examples of different interactional episodes are given below.

Table 6.11: Comprehensive details of the lecture discourse

Lecture Identification	No. of interactional episodes	Total duration of interactional episodes (minutes)	Types of questions used to initiate the interaction and their number
Physics – Lecture 1 (PH 1)	7	12.20	7 KTQs
Physics – Lecture 3 (PH 3)	8	17.40	1 CMQs; 3 KTQs; 3 KAQs; Student Initiated Question –1
Physics – Lecture 5 (PH 5)	3	6.40	2 KTQs; 1 KAQ
Biotechnology – Lecture 1 (BT 1)	3	9.20	3 KTQs
Biotechnology – Lecture 3 (BT 3)	8	10.30	7 KTQs; 1 CMQs
Biotechnology – Lecture 4 (BT 4)	5	14.50	4 KTQs; 1 CDQs
Applied Statistics – Lecture 1 (AS 1)	8	22.30	4 CDQs; 4 KAQs
Applied Statistics – Lecture 3 (AS 3)	8	23.10	2 KTQs; 5 KAQs; 1 CMQs
Applied Statistics – Lecture 4 (AS 4)	8	11.10	1 CDQs; 5 KAQs ; 1 CMQs; 1 KTQ
Animal Physiology – Lecture 1 (AP 1)	4	2.10	4 KTQs
Animal Physiology – Lecture 3 (AP 3)	1	0.15	1 KTQ
Animal Physiology – Lecture 4 (AP 4)	4	2.40	2 KTQs; 2 KAQs

Concept Development Episode (CDE)

When an episode attempts to develop a concept (theme) of a lesson in a dialogic manner it is called a CDE. In the given extract below, the lecturer tried to define the attributes of quality using students' contributions, though student's answers were short.

ML2: [.....] but say suppose you go the– go to / a textile and buy this T–shirt ok↑? and one of your friend will say it is a good quality T–shirt what is measuring there? (I)

MM5: material (R)

ML2: sorry (CR) (Clarification Request)

MM5: material (R) [.....]

Knowledge Testing Episode (KTE)

In these episodes the lecturer begins with a KTQ to check the previous knowledge of the students so that the episode is called a KTE.

ML1: so this is the shape of the alternative current and the potential now this is the one— one cycle so the time for the one cycle say capital T and the relation between omega and t is equal to what↑? [...]

MMn: omega is two Pi over T

BL1: /lh²⁵/↑? yes the same thing what is that↑?

MMn: T is equal to two Pi

ML1: [T is equal to two Pi over omega otherwise omega is equal to two Pi over?

MM5: T

ML1: so keeping these all [...]

Knowledge Application Episode (KAE)

In KAEs students are expected to demonstrate their previously gained knowledge in a novel situation. In this extract from Physics, students are involved in a task given by the lecturer. As the students are applying their previously learnt knowledge in another situation, this episode is called a knowledge application episode.

ML1: [...] first↑? according our bridge right the initial bridge Z1 Z2 Z3 Z4 so can you find the Z1↑? Z1 is the total impedance in that particular branch so we have two elements that is resistance R1 and the capacitor C1 [...] simple— what is the er that is yes— what is that in er in the complex zone that is Z1 is equal to? [...] ok Z1 is equal to↑?

MMn: [[inaudible student's answer]]

ML1: ah²⁶↑? speak out

MM6: R1 plus one over I omega C

ML1: Just er what— what is your answer [...] the total impedance what are the elements in that branch look at your bridge R1 and Z1— this is the— what I am— er in this this is our Z1 this is our Z2 this is Z3 this is our Z4 so what is the Z1↑?

MM6: R1 plus

ML1: R1 plus ok R1 plus [...]

Classroom Management Episode (CME)

In these episodes the lecturers discuss the matters that are not directly related to the content of the lecture but deal with the procedures, regulations, etc. with regard to the conduct of the lecture. For example, in this extract below the lecturer discusses the submission of an assignment.

²⁵ This word/sound used to ask questions (clarification request) which is similarly used in L1

²⁶ See foot note 27

ML2: right↑? so we are finished all the theory and I gave some problem to solve and I asked you to bring this er assignment– is today can I have↑?

SAC: [[inaudible – a word]]

ML2: submitted↑? to whom↑? ah?

SAC: demonstrator

ML2: demonstrator when↑?

SAC: today– today morning

ML2: today morning so everyone– all you have submitted right↓. thank you↓. so [.....]

6.6.3 RQ 4. To what extent does lecturer-student interaction occur in FAS lectures? RQ 4.3. What types of overall discourse are found?

The lectures were categorised using the classification system/framework developed for the type of overall lecture discourse, and the resulting categories are shown in table 6.12 below. As there were no lectures identified in the interactive categories, there were no lectures in the dialogic categories either. The dialogic lectures are conditional categories within interactive lectures, while interactivity is the prerequisite for dialogic lectures. For a lecture to be mostly interactive or highly interactive it should have more than 30 or 40 minutes in total of interaction respectively. To be dialogic more than the interaction they should have predominantly CDEs. However, the dialogic categories are, as mentioned earlier, idealistic discourse categories as far as the FAS discourse is concerned because most of the lectures were conducted in the monologic manner as noticed over the observation of 24 lectures. I have limited my analysis to the 12 transcribed lectures.

Out of the 12 lectures, 10 lectures belonged to the monologic categories, while no lecture fell into the interactive or dialogic categories. This situation clearly exemplifies the lecturing situation at FAS. Though there were a small number of interactional episodes in two lectures (AS 1 and AS 3), they belonged to the mixed

lecture category because the total duration of interactional exchanges was below 30 minutes.

Table 6.12: Overall lecture discourse type

Duration of total interactional episodes (minutes)		Discourse category of lecture	Lectures
<10		Highly Monologic	PH 5; BT 1; AP1; AP 3; AP 4
10 – 20		Mostly Monologic	PH 1; PH 3; BT 3; BT 4; AS 4
21 – 30		Mixed Lectures	AS 1; AS 3
31 – 40	Other types of episode predominate in the discourse	Mostly Interactive OR	
	CDEs predominate in the discourse	Mostly Dialogic	
> 40	Other types of episode predominate in the discourse	Highly Interactive OR	
	CDEs predominate in the discourse	Highly Dialogic	

6.6.4 Across individual lectures

Table 6.13 below elaborates the individual lectures and their overall discourse types with the individual duration of episodes. The individual lecturer's lecture style or the lecture discourse was not consistent. For example, two of the Biotechnology lectures were in the mostly monologic category, while one was found to be highly monologic. As we saw earlier, 10 out of the 12 transcribed lectures belonged to monologic categories. This pattern indicates that the lecturing pattern at FAS mostly favoured a monologic type presentation. Of all the lectures, the Applied Statistics lectures can be considered to be somewhat different from the other lectures. Two of the three lectures were in the mixed category which had a considerably higher duration (more than 20 minutes) of interactional episodes. In addition, one was a mixed lecture (AS 1), which had 4 conceptual development episodes (CDEs), which

are deemed to be beneficial for developing dialogic interaction. This particular lecture had 16 minutes of CDEs out of 22 minutes of total interactional episodes. Therefore, it can be presumed that this lecture delivery leaned slightly towards the dialogic mode in which lecturers and students construct knowledge together. Though two other lectures had CDEs (BT 4 and AS 4), they had only around five and two minutes of interaction respectively with a single concept development episode each, and as a result, fell into the mostly monologic category.

All three lectures from Animal Physiology were identified as highly monologic, which is at the lowest end of the interactive/dialogic-monologic continuum. In addition, one of the Physics lectures (PH 5) was categorised as highly monologic, while two (PH 1 and PH 3) were categorised as mostly monologic. The difference between these two categories was based on the duration of episodes. The latter was somewhat better than mostly monologic in terms of lecturer-student interaction. Nevertheless, neither can be considered to be favouring a dialogic teaching mode.

With regard to different interactional episodes, Knowledge testing episodes (KTEs) were the most common of all the types, and next to it were KAEs. The time spent on CDEs, which are believed to contribute to the knowledge building, was comparatively low.

Table 6.13: Duration of different interactional episodes and the total duration

Lecture	Duration of different episodes					Total duration of interactional exchanges	Overall lecture discourse type
	CDE	KTE	KAE	CME	Other		
PH 1		12.20				12.20	Mostly Monologic
PH 3		4.30	10.40	0.10	2.20 ²⁷	17.40	Mostly Monologic
PH 5		6.30	0.10			6.40	Highly Monologic
BT 1		9.20				9.20	Highly Monologic
BT 3		10.10		0.20		10.30	Mostly Monologic
BT 4	6.20	9.30				14.50	Mostly Monologic
AS 1	16.20		6.40		0.30 ²⁸	22.30	Mixed Lecture
AS 3		0.20	22.40	0.10		23.10	Mixed Lecture
AS 4	1.40	1.50	7.20	0.20		11.10	Mostly Monologic
AP 1		2.10				2.10	Highly Monologic
AP 3		0.15				0.15	Highly Monologic
AP 4		0.20	2.20			2.40	Highly Monologic
Total	23.20	56.15	49.50	1.0	2.50	132.10	

6.6.5 Exemplification of the pattern of overall lecture discourse, interactional episodes and lecturers' questions

In this section, examples of different overall lecture discourse patterns are presented. In addition, the pattern of interactional episodes, and lecturers' questions found within the overall discourse are explained. The lectures fell into three types of overall discourse out of five as shown in table 6.13. They were in the mixed, mostly monologic and highly monologic categories. What I try to exemplify across these

²⁷ Refers to student initiated interaction in L1

²⁸ This is a special category, where the episode was initiated as a CDE but it ended like a KTE without proper support from the students

different examples is to show how the FAS discourse was influenced traditionally with monologic delivery and how little students contributed to the classroom discussions. In the next section, I explain examples of a mixed lecture and a mostly monologic lecture. As the highly monologic lectures do not have considerable interactional exchanges, I do not present them.

6.6.5.1 Structure of a mixed lecture (with CDE)

The extract below reflects the mixed lecture category. By mixed lecture it is meant that both interactive and monologic segments are present in lectures. In this lecture the lecturer tries to introduce the definitions of quality using a conceptual development question (CDE), which can favour the development of dialogic episodes. This lesson is part of the Quality Control Course of Applied Statistics. The lecturer unfolds the discussion by asking students directly what quality is. Due to the poor language proficiency of the students the lecturer requires several attempts to get answers from them (moves 1–10)²⁹.

If we look at this episode (from AS lecture 1), there are monologic segments within the overall dialogic discourse. Though the lecturer commences the episode as dialogic when he does not get enough support from the students in terms of his desired answers he changes his discourse pattern to monologic and draws the students to the point he wanted students to reach. The episode begins with a question ‘what is quality’ as shown below:

1. ML2: [.....] now next I am going to teach you what is the definition of quality– definitions of quality what is quality? because– ok you can– this– theoretical definition is there when I ask you just what is quality what you can say? what is quality? [5] what is quality? [7]
(I – I – I – I)

²⁹ The numbers assigned to moves do not reflect their place in the entire lecture

2. MM5: better than (R partial)
3. ML2: sorry– better (CR)
4. MM5: better than the (R partial)
5. ML2: better than the– sorry (CR)
6. MM5: anybody (R)
7. ML2: /uh/? (CR)
8. MM5: better than the bad body (R)
9. ML2: better than– one– better than the (CR)
10. MM5: better than something (R)
11. ML2: better than something– ok– better than something– ok– now– I am asking– you– go to– go to some textiles and buying a shirt and saying it is a quality shirt what does it mean the quality shirt? (F) [.....]

As we saw above, the lecturer draws on different examples in order to explain the concepts, but these questions are not cognitively demanding. If we carefully observe the exchanges in this episode (see appendix 7 for continuation of this episode – Applied Statistics – Lecture 1 – Episode I) from moves 1 to 31 the lecturer and the students explore the ideas together through a sequence of interactional exchanges. This is a dialogic process. Again, in move 32, the lecturer presents some information to the students so that the discourse becomes monologic. From 33 to 38 he interacts with students but the questions were not cognitively demanding and he does not use their response to co-construct the lesson. Therefore, they are monologic, though interactive. The discourse turns to monologic in the 39th move. Finally, from moves 40–47 he draws out students’ views and develops the concept that variation affects quality and also defines what quality is. As a result the discourse becomes dialogic. In this way we can see a continuous movement from dialogic to monologic and vice-versa. In this episode as monologic segments are interspersed within the overall dialogic episode, as shown above, I call it *monologic-dialogic interspersion*. Even though this episode is a concept development episode which is believed to incorporate

the views of the students towards lesson building the students did not cooperate well. Their answers were in short form and uttered inaudibly most of the time. Another feature is even though interaction takes place in episodes it can be authoritative too (e.g. moves 33–38) so that interaction does not always lead to the dialogic mode. In addition, beyond move 50 we can see lecturer increases his monologic talk.

Question type and pattern of interactional episode within the mixed lecture

The episode commences with a CDQ, ‘what is quality’ and the lecturer repeats the question several times. The initial question is immediately followed by an explanation and there is a waiting time of five seconds between the second repetition and the third and also seven second waiting time for the third repetition before the students attempted to answer. I call this an extended initiation move (I – I – I).

Here we can see that the IRF exchange is expanded because of the CR (Clarification Request) expansion moves, as illustrated in the initial moves of the episode. These exchanges occur between the lecturer and a student (MM5). The student is unable to express his answer in an appropriate form so that the three part I – R – F expands to several moves with CR. Therefore, the interactional pattern is I – R – CR – R – CR – R –F.

6.6.5.2 Structure of a mostly monologic lecture (with KAE)

PH 3 – Ex 1 is presented as an example of mostly monologic lectures, in which the total duration of interactional exchanges varies between 10 and 20 minutes. In this lecture, as the lecturer asks the knowledge application question (KAQ), this episode is defined as KAE. In KAEs students are involved in tasks which require them to apply their previous knowledge. The beginning of this episode starts with an explanation given by the lecturer to enable students to understand the context of the task.

1. ML1: the summary is a capacitor [...] a resistance are connected with a AC source er this values are given C is equal two microfarad R is equal to er two kilo ohms er and the er only this is given er what is that er the supply unit operates at a fifty Hertz so F is given– not it is an omega F is given F is equal to er what is that er fifty Hertz and the peak value is given not a V the peak– the peak to peak value that is V_0 is given equal to twelve ok so these are the given values now you have to find or calculate the peak current in the circuit you have to find the I_0 [...] and peak potential different across the component so you have to find the er er potential between this component and this component right– ok you got the given values ok how to find↑? (I)
2. MM6: V_0 over (R)
3. ML1: er– [...] yes– yes (F)
4. MM6: I_0 is equal to (R)
5. MM7: $\frac{V_0}{\sqrt{m}}$ over root of mass [inaudible – a word] of one over omega t (R)
6. ML1: er– the total values er what is that er– before that you have to find er (F)
7. MM3: $\frac{V_0}{\sqrt{R}}$ is equal to
 I_0 is equal to V_0 over root of R– R we know R and omega xxxx [[text omitted inaudible word]] [...] (R)
8. ML1: yes– yes so we have to find the total impedance am I right? first ah? we have to find the total impedance right? ok so what is the total impedance↑? Z is xxxx [[text omitted– mispronounced word]]– equal to in this type of circuit tell me what is the impedance– total impedance↑? [...] (F + I)
9. MM3: V over R (R)
10. ML1: ah↑? (CR)
11. MM3: V over R (R)

Question type and pattern of interactional episode within the mostly monologic lecture

As we see in this episode the question that initiates the interaction is KAQ. The discourse pattern of the episodes resembles the traditional IRF pattern, with a few changes. Here a R move (move 4) occurs following the Feedback (F), whereas in the traditional IRF pattern an I move precedes the R move. In this case the follow-up move ‘F’ performs the function of the I move. In move 3 (F), as you can see below, the lecturer’s ‘yes– yes’ is a kind of acceptance given to the student’s answer and also indicates that he can proceed, so that the student moves to the next step without waiting for another initiation from the lecturer.

2. MM6: V_0 over (R)
3. ML1: er– [...] yes– yes (F)
4. MM6: I_0 is equal to (R)
5. MM7: $\perp V_0$ over root of mass [inaudible – a word] of one over omega t (R)

Here the feedback (acceptance) from the teacher is followed by a further response from a student. Mortimer and Scott (2003) found in their discourse that elaborative feedback induced further response from the students. In addition, in this episode the R move is followed by another R because another student responds without waiting for the feedback (Moves 4 and 5). This can be considered as a kind of peer support – MM7 assisting MM6. As these students are adults they do not wait for the lecturers' feedback or re-initiation move to give their response.

Another feature of this interactional pattern is that the CR move is made through a question word *ah*' (move 10) and it performs the same function as the usual CR (e.g. sorry?, can you repeat?, etc.). This questioning pattern seems to follow the L1 questioning pattern, where the same phonemic expression occurs to make a clarification request. For example, ML1 used it in PH 5:

ok you got the points↑? *ah*↑? right↑? what is your answer↑?

In addition to ML1, other lecturers also used this (e.g. BL1 in BT 4)

ah↑? How do you direct this↑?

6.7 Discourse strategies found in the FAS lecture discourse

I present below two discourse features that are common and occur in many observed lectures. They are (i) Extended initiation move and (ii) CR expansion.

6.7.1 Extended Initiation move

The extended initiation move was found in many of the observed lectures (e.g. Applied Statistics – Lecture 3; Animal Physiology – Lecture 1; Animal Physiology – Lecture 4; Biotechnology – Lecture 4). In this extended move lecturers ask several questions within a single initiation move. The reason for this extended move is to encourage students to answer. Usually in FAS, students are reluctant to give answers but with the use of this move lecturers might exert some authority over the students to compel them to answer. I present here an extract of Biotechnology – Lecture 4, in which, rising intonations along with the continuous initiation moves indicate the expression of authority by the lecturer to get an answer from the students.

BL2: ah↑? how do you direct this↑? this portion should be replicated? how do you direct this?
[...] ok– can you remember some of small DNA molecules are using [...] here er– small
DNA molecules are used for synthesizing new DNA what are them? what are them? [...] in
the natural DNA replication when the DNA is started to replicate a small molecules of
DNA is necessary to initiate the new DNA synthesis what is that? ah↑? what is that↑? [...]
(I – I – I – I – I – I)

6.7.2 CR expansion

CR expansion is another discourse pattern in the FAS lectures. As we discussed earlier the audibility problem creates the CR expansion. It was also found in many of the lectures (e.g. Applied Statistics – Lecture 3; Biotechnology – Lecture 4).

The extract below indicates the discourse pattern that occurs in AS 3. The presence of CR prompts extends the discourse to several moves. Otherwise, the pattern of exchange could have been the simple I–R–F form.

1. ML2: [.....] all of you having this piston ring example [6] [[distributing handouts]]
any of you want this↑? no ok↑? [7] you have↑? this one ok at home↑? or here↑? ok now
I want you to bring all the notes every day when you are coming to the– these lectures
ok↑? because this set of notes [...] you have this↑? (I–I–I–I–I–I)
2. MM6: [[inaudible answer]] (R)
3. ML2: ah? sorry (CR)

4. MM6: forgotten (R) [[lecturer gets closer]]
5. MM6: I forgot (R)
6. ML2: forgot ok↓ anyone want now↑? to work no right↓ (F–I–I) [[students working on the task]] [[silence – 30 seconds]] now already you have calculated X double bar ok can you say the value of X double bar what you have calculated? [...] what is the X double bar? (I–I)
7. SAC: seventy four point zero one one (R)
8. ML2: seventy four point seventy four point? (CR)
9. MM3 +MM6 + MM2 + MF2: zero zero one (R)
10. ML2: zero zero (CR)
11. SAC: one (R)
12. ML2: one yes R bar also you have calculated already because I don't want to do it re do it what is the value? (F–I)
13. MMn: zero point zero two three (R) [.....]

The moves 3, 4, and 5 as well as 8, 9, and 10 occur because of this particular situation – the lecturer was standing far from the students and also the students talk quietly creating a communication breakdown, especially an audibility problem. These kinds of expanded moves occur in order to overcome the communication breakdown and I call them CR expansion moves in this study. They occur frequently across the FAS discourse. Hence, if CR expansion moves (moves 3, 4 and 5) are removed from the exchange it will result in an IRF exchange in this particular situation.

6.9 Moving from overall lecture discourse pattern to lecture delivery approach

Even though I identified a system to classify the overall discourse pattern based on the interactiveness of lectures and their dialogic value, this system does not seem to be appropriate for identifying the different lecture delivery approaches available at FAS.

According to discourse functions, I divide the lectures into two. One is content transfer and the other is concept development. Further, these two discourse functions

could be connected to two communicative functions: *authoritative* (or monologic) and *dialogic* respectively. In authoritative discourse the teacher or lecturer's intention is to transfer the content (or knowledge) (Scott, 1998) and teachers/lecturers convey the science point of view giving little opportunity for incorporating students' views into lesson building (Mortimer and Scott, 2003). On the other hand, dialogic discourse is used to encourage exploration and development of meaning (Scott, 1998). I tend to call this 'encouraging exploration and development of meaning' as concept development without any change in the meaning. In concept development episodes, lecturers and students work together and develop a concept. Lecturers consider students' views and incorporate them into the lesson through CDEs. At FAS most of the lectures are content transfer except AS 1, in which CDEs predominated along with other episodes. As a result, they have a concept development as well as a content transfer function.

As an interesting finding of this study, I identify another approach at FAS which has some special features in the lecture delivery. They are also monologic delivery with the intention of content transfer, but the lecture delivery is different in a number of ways. In this approach, lecturers provide all assistance to the students in order to make lecture comprehension easy for them, mainly lecturers use L1 and dictate notes. I call this 'highly monologic-content transfer student beneficiary approach' and I illustrate it under DQ2 of the discussion chapter.

In this approach, the lecture is delivered by monologic delivery without an opportunity for students to participate. But lecturers provide all sorts of assistance to students in order to make the lecture understandable to the students. Such assistance includes mother tongue explanation, dictating notes word by word, dictating the

punctuation marks (e.g. comma), writing notes on the board and allowing students to copy them, and asking and answering questions by lecturers themselves. e.g. optional lectures (as observed).

6.10 Cross-referencing the data

In this section, I will discuss how data from different quantitative and qualitative methods support or contrast each other in the key research areas of this study, mainly to show data integration and validation. In the previous sections, I presented the quantitative and qualitative data under two broad themes: lecture comprehension and lecturer-student interaction, focusing on the main research questions and in a similar manner in this section I also build my discussion on the same themes. Summarising the main findings, I explain how data from different sources are integrated either to corroborate or crosscheck the findings.

In the methodology chapter, I explained the research design of this study - how the data from three major sources: survey, interview and observation are allowed to work synergistically within the overall MMR design. It was explained that the survey data are crosschecked with observation data and any discrepancy arising from these two is dealt at interview. In this way, it was explained that the validity of the findings are enhanced. Therefore, following this argument in this section, under each topic, initially I compare and contrast the findings from the survey of the students and the lecturers, followed by the observation data, and finally present the interview results. In addition, in this section, I limit the discussion to show how the data can be cross-referenced. Further exploration of the findings can be found in the following discussion chapter.

6.10.1 Lecture comprehension

Lecture comprehension abilities and reasons for comprehension problems

As we saw earlier in the survey, half of the students estimated themselves to have average comprehension ability while a slightly lower percentage considered themselves able to understand almost everything from the lectures. In contrast, three of the four lecturers rated their students to be able to understand almost everything, while only one lecturer considered them to have the average ability.

During the observation, it was found that in BL2's subjects, students, who were seated around me, did not take down notes. The reason students cited was that they had problems understanding lectures and also they were uncertain whether the lecturer was explaining the topic or dictating notes. Students generally considered this subject as more difficult to comprehend compared to others.

Further, during the interview, both students and lecturers revalidated their own reasons for the comprehension problems mentioned in the survey. Students claimed that some lecturers did not organise their lectures well so that their lectures were difficult to comprehend. Lecturers, on the other hand, blamed the students for not doing enough self-study, which in turn led to comprehension difficulties. However, lecturers agreed that there were some other problems which also affected the students such as poor vocabulary knowledge and limited language proficiency. Moreover, the lecturers stated that certain subjects were complicated and subject units were not connected to each other so that comprehension was difficult.

With regard to this particular issue, students gave more weight to individual lecturers' lecture delivery style over the complicated nature of the subject as a reason for their comprehension difficulties. Therefore, for students it looked like a lecturer delivery

problem rather than a problem of subject difficulty. Students' argument was even though both BL1 and BL2's subjects were new and difficult, their comprehension in BL1's subjects was better than BL2's, whose lecture delivery was not organised, students claimed.

In this respect, it was also observed that students eagerly participated in the lectures conducted by ML2, while they were passive in BL2's classes. In these two lecturers' classes higher to lower level of interaction was found respectively. They expressed their understanding of the subject in ML2's classes, by way of answering questions, but such efforts were lacking in BL2's classes. Students also subsequently reported in the interview that ML2's classes were interesting and easy to understand and question-answer teaching method (interactive teaching) was good for them.

Even though it can be claimed that because of the interactive lecture delivery style students react positively to classroom discussion and easily understand the lectures, there are other reasons too for the comprehension difficulties. One is the subject difficulty and the background knowledge of the subject. The subject taught by BL2 is quite new and students did not have any background knowledge of the subject, while the subject taught by ML1 is a rather general subject with familiar content. However, based on my observation, I should also mention that the lecture delivery style of BL2 was complicated; the delivery was not organised. The lecturer seemed to present many different unconnected points within a lecture which was difficult for students to understand. I already stated the students' claim under 6.2.1 with regard to BL2's lecture delivery that it was not organised. Therefore, it can be claimed that several factors influence lecture comprehension, of them lecture delivery style, mainly the interaction in lectures, lecture organisation, familiarity of the subject and subject

difficulty are particularly important. Further, students' language proficiency and listening difficulties also influence lecture comprehension.

Solving lecture comprehension problems

As shown in the findings chapter, the vast majority of the students in the survey reported that they discussed their comprehension problems with their classmates, tutors or with their lecturers, though the last occurred in a very limited scale. Three of the four lecturers claimed in the survey that students solved their lecture comprehension problems by way of discussing with them in the class or at the end of the class, but at the same time, they remarked that such discussion was limited. Also during the classroom observation there was no evidence of such discussion either, except on three occasions in which students asked the lecturers questions in L1 individually when they went near them.

During the interview, more than half of the students confirmed that they discussed their comprehension problems with their colleagues and an equal number said they went to the tutors to solve their comprehension problems. Lecturers, agreeing with these two claims, stated that students rarely asked questions of them, instead they went to tutors. During the observation also there was no evidence for students asking the lecturers questions in the class or at the end of the class. Furthermore, the tutors confirmed that students came to them to solve their comprehension problems. Therefore, it can be presumed that students discussed their comprehension problems with their colleagues and tutors as the predominant way of solving comprehension difficulties.

Importance of different types of support from subject lecturers for lecture comprehension

Students reported different types of support such as using visual aids, repeating key points, and providing written outline as important to very important. Similarly, lecturers also considered all those types of support as important. However, during the observation, it was found that only a few lecturers offered some kind of assistance to students to enhance their lecture comprehension such as using visual aids, providing vocabulary related assistance, asking questions or involving students in discussions. In contrast, I noticed that some lecturers, who were not part of the regularly observed lectures, including the junior lecturers, provided several types of assistance to students. For example, they wrote the lecture notes on the board so that students copied them or dictated notes with several occurrences of signposting (i.e. Lecturers said ‘now write notes, next paragraph, start writing’, etc.). I identified this kind of lecture delivery style as ‘highly monologic content transfer student beneficiary approach’ in the previous section 6.9.

When the lecturers were asked about the use of visual aids they reported that using them in the classrooms is time consuming because of the preparation needed for the lecturers and setting them up in classes (e.g. BL2) because the classrooms were not fixed with teaching equipment permanently and it had to be shared between several classrooms. In addition, all the interviewed lecturers expressed their displeasure towards the highly monologic content transfer student beneficiary approach which they believed not only curbs students’ development but also puts the lecturers in an embarrassing situation, because these students expected the other lecturers also to deliver the lectures in the same way.

6.10.2 Lecturer-student interaction

Answering Questions

In the survey, almost all (97%) the students mentioned that they did not answer questions asked by the lecturers. Lecturers in the survey generally agreed with students that only a few students readily answered questions, and two others (in particular BL1 and BL2) stated that even those ‘a few students’ answered only after repeated requests.

During observation, I noticed that in both ML1 and ML2’s classes students attempted to answer questions, whereas in BL2’s classes they were quiet most of the time. The same students in BL1’s classes answered her questions when she insisted only.

As reasons for poor answering students reported shyness, language problem and fear. The students’ alleged fear was actually two-fold. One is fear of being misunderstood for giving a wrong answer and other is fear of being punished by the lecturers for challenging their authority. In some cases (e.g. BL2’s classes) students did not answer because they reported that the lecture delivery was complicated. Hence, based on the observation, it can be stated that BL2’s failure to insist on answer, coupled with her lack of wait-time, may also have some influence on students’ failure to answer in her classes, along with other reasons cited above such as fear and language problem.

During the interview, students mentioned mainly their fear that lecturers would misunderstand and penalise them as a reason for not answering questions. As far as the lecturers are concerned, only ML2 claimed that his students answered well, while the others had more negative views. As reasons for not answering, BL1 said that even though students knew the answer they felt shy to say the answer while BL2 was quite

sceptical on this. She argued that ‘even for a simple question they don’t answer’ (BL2 - interview).

Asking questions

Eighty percent of the surveyed students stated that they did not ask questions in the classroom to overcome their comprehension problems, while lecturers also confirmed in the survey that students rarely asked questions in the class or outside the class.

During the observation it was found that of all the observed lectures only three questions were asked by the students in L1 and more importantly those questions were asked when the lecturers went near the students as mentioned earlier. This observation confirmed the view that students rarely asked questions in the class.

Furthermore, students reported in the interview that they found it easier to discuss their comprehension problems with their colleagues or tutors than with their lecturers because they were either hesitant or unable to use L2 to ask questions of the lecturers. In addition, their belief that lecturers would penalise them if they asked questions also prevented them. I discuss this fear in detail in section 7.2.2. In this connection, students further reported that they went to certain lecturers, whom students considered friendly, and also they could talk in the mother tongue with.

Lecturers also confirmed that students discussed their comprehension problems with their classmates or tutors. Even though students considered that their discussion with their colleagues is a reason for not asking questions in the class, it is not clear whether it is a result of their inability to discuss with the lecturers that they discussed with their colleagues. On the other hand, students also reported that they discussed their comprehension problems with the friendly lecturers and also felt free to answer

questions asked by those friendly lecturers. I explain this concept of lecturer-student friendliness below.

Students defined what they perceived by lecturer friendliness. Students considered a lecturer as friendly when ‘the lecturer knew the names of the students’ (MM1), ‘said a hello when he or she saw the students outside the classroom’ (BF3) or ‘at least smiled at the students’ (BF1). The observation suggests that students tend to be somewhat more active in the classes conducted by those friendly lecturers. They participated in classroom discussions, although the overall number of questions and answers were limited in number. They believed that the so-called friendly lecturers would not misunderstand them for asking or answering questions. They stated:

Those lecturers whom we ask questions of are familiar with us. (BF2, interview)

Some lecturers behave friendly with the students and we believe that they would not misunderstand if we ask questions of them. (BF1, interview)

In contrast to the issue of friendliness, students treated some lecturers as unfriendly and they feared asking questions in the classes conducted by those particular lecturers or outside the classroom. The students’ fear was based on their assumption that those lecturers may consider that students were trying to challenge them. In addition, MM3 claimed that the students identified a few lecturers as more unfriendly because they assumed that those lecturers may penalise the students not only for asking questions but also for answering questions. This view was supported by the whole group. Students feared that those lecturers may think that the students try to show off when answering questions. Even though the students’ claim of unfriendly lecturers was found to be based on their own assumptions, they were able to name the lecturers whom they considered as more unfriendly.

As far as the lecturers are concerned, they are not aware that students have categorised them using friendliness as a measure, but they reported that they have realised the importance of cordial lecturer-student relationship. In addition, all of them wanted to claim themselves as friendly. For example, BL1 stated that lecturer-student friendliness was high in that university compared to other traditional larger universities. Similarly, ML2 and BL2 claimed that they were friendly with students. In this connection, BL1 mentioned that she is afraid that students may misuse this relationship for their own benefits (e.g. pass the examination) when the lecturers were closer to the students.

During the observation, students were found to be answering questions asked by ML1 and ML2 whom students considered friendly, compared to BL1 and BL2. Also, the three questions students asked were also found in both ML1 and ML2's classes. However, despite this potential usefulness of friendliness, the opportunities for students to interact were not provided in many observed classes. Only ML2 seemed to make such opportunities, while they were very limited in BL2's classes.

6.11 Chapter summary

In this chapter, I have tried to answer all the research questions. It was reported that even though students had lecture comprehension problems, they rarely discussed these with their lecturers in the class. That is, lecturer-student interaction was low at FAS due to the students' language problems, shyness and more importantly an alleged fear of asking or answering questions in the class.

It was also found from the lecture discourse that only lecturers asked questions in the lectures, while student questions were negligible in number. Most of the questions asked were knowledge testing questions, while concept development questions were

very limited, despite their value for learning. The pattern of interactional episodes followed the traditional I–R–F pattern with a slight modification as a result of plenty of CR moves occurring. An important finding of the study was that most of the lectures were monologic, delivered without any interaction between lecturers and students. Only two lectures were found to have some kind of interactive episode, and were identified as mixed lectures; nevertheless, the value of those interactions is called into a question, as far as the dialogic value of those episodes are concerned.

CHAPTER 7 – DISCUSSION

7.1 Introduction

In the previous chapter, I tried to answer all the research questions of this study; they covered the following broad areas:

- (1) What factors influence the second year science students' lecture comprehension?
- (2) How do the students attempt to overcome their lecture comprehension problems?
- (3) What factors influence the second year science students' lecturer-student interaction?
- (4) To what extent does lecturer-student interaction occur in FAS lectures?

In this study, it was found that, like other Asian students, FAS students' participation in classroom discussion was limited. The students rarely discussed their comprehension problems with the lecturers or took part in classroom discussions. Some of the reasons for this were similar to other studies as I explain below, while some emerged as specific to FAS. The students' language problem seemed to influence their lecture comprehension as well as their classroom interaction, even though some students claimed that English proficiency did not affect their ability to understand the lectures. In addition, in this study it was found that the influence of senior students through ragging affected classroom interaction and, subsequently, indirectly affected lecture comprehension. Another important finding was that the lecture delivery at FAS was mainly monologic except a very few interactive lectures.

In this discussion chapter, initially I analyse the reasons for the monologic delivery by paying attention to the factors mentioned above and also investigate how the findings are similar to other Sri Lankan as well as Asian contexts. In addition, I consider the implications of the study while analysing the feasibility of introducing

interactive/dialogic lectures at FAS. Therefore, I consider the following discussion questions in this chapter:

7.1.1 Discussion Questions (DQs)

DQ1. Why is there little interaction between lecturers and students at FAS?

DQ2. Are interactive/dialogic lectures important for lecture comprehension at FAS?

DQ3. How similar is the situation at FAS to other L2 contexts in Sri Lanka and Asia more broadly?

DQ4. What are the implications of the results of this study for lecturing (and research into lecturing) in L2 contexts in Asia and further afield? How feasible/appropriate is it to introduce more interactive approaches to lecturing in such contexts?

7.2 DQ1. Why is there little interaction between lecturers and students?

The reasons for limited lecturer-student interaction in FAS lectures could be attributed to either the students or the lecturers. I am going to identify four main reasons, of them three reasons are attributable to the students: (i) their limited language proficiency, (ii) influence of seniors through ragging and (iii) students' passive behaviour. The fourth reason was attributable to the lecturers: (iv) the lecture delivery style. I discuss these four factors in the following sections.

7.2.1 Language Proficiency and lecturer-student interaction

Language proficiency is believed to influence students' ability to interact in the classroom. At FAS students might feel reluctant to answer questions or ask questions in the class fearing that their poor language may allow other students to make fun of them. Due to their inability to ask or answer questions in the class, students rarely clarified any lecture comprehension problems either within or outside the class. In Flowerdew et al.'s study (2000), which I described in chapter 3, the Hong Kong

Chinese students in the BA TESL methods course were reluctant to ask questions and participate in classroom discussions due to their low English proficiency, which is similar to the findings of this study. Nevertheless, language problem was not the only factor which influenced the students' ability to ask or answer questions. Some of the students, whose English proficiency was satisfactory and were active in classroom discussions in English classes, rarely answered or asked questions in content classes. This was partly due to their fear of talking in the class or shyness to do so, as I discuss later.

7.2.2 Influence of senior students through ragging

At FAS senior students tried to use ragging as a platform to disseminate their own philosophy of university culture and impose their own rules on junior students. One reason for ragging could be believed to be the maintenance of the status quo. Some seniors expect junior students to respect them. This can also arise from an inferiority complex if some of the seniors think their juniors have better knowledge, etiquette, or wealth (Buddhadasa, 2007).

As I explained in the findings chapter, the juniors faced two kinds of problems due to ragging. One arises from the direct advice. The seniors advised the juniors on how they should behave in the classroom – the juniors should not have any relationship with lecturers or should not ask or answer questions in the class. As a result of this kind of influence, the junior students did not actively participate in classroom discussions. Further, the direct impact of this situation could be that students might not express their lecture comprehension problems in lectures. As the students did not ask questions in the class to express their comprehension problems or answer lecturers' questions, lecturers may have found it difficult to gauge whether the

students had understood the lecture or not. The students also refrained from asking questions of the lecturers outside the classroom. Therefore, the absence of questions and answers on the students' part may have affected their lecture comprehension.

Another problem with regard to ragging was the direct threat imposed on the juniors by the seniors. The seniors tend to restrict the free movement of the juniors, mainly, as was reported in the findings chapter, they discouraged the juniors from using the library, and at times prevented them from attending classes during the ragging period. These situations might affect their learning, and also distracted their concentration from their studies. Even though the second reason did not directly affect students' classroom participation, the threat and stress caused by ragging might have hindered the students' ability to study freely in their class or participate in classroom discussions.

Ragging in other countries

Ragging is prevalent at the higher educational institutes in Asian countries like Sri Lanka, and India. Also, ragging is known in different names in Pakistan (Kaiser, n.d.) such as teasing, ducking and ragging. Of which teasing is the mildest form of abuse, while in ducking juniors have to perform like an animal. It is also revealed as bullying in a study in Pakistan (Ahmer, et al., 2008). Even though a similar pattern of bullying is apparent in Western countries, for example in the UK universities (Karim, 2010), the extent to which it influences students' academic activities is yet to be explored.

The situation in India seemed to be different from Sri Lanka with regard to the effect of ragging. As CURE (Coalition to Uproot Ragging from Education, 2007), an organisation which campaigns for the eradication of ragging in Indian higher educational institutes, reveals that another hidden ugly face of ragging is sexual

abuse. It reports that 20% of the ragging incidents in India are sexual abuse. Even though there are no known complaints of sexual abuse at FAS, except the reported physical abuse, an in-depth study of this kind is yet to be conducted in Sri Lanka.

Studies on ragging

Even though ragging takes place in other Asian countries, such as Malaysia and Bangladesh there is not sufficient published literature on ragging in general in the Asian countries. In Sri Lanka a few newspaper articles and opinion columns consider the worst effects of ragging in terms of loss of life and injury to juniors, including the report by Buddhadasa (2007). The only recent published study in Sri Lanka has been conducted by Premadasa et al. (2011). They investigated the harassment caused by the senior students to the juniors at the Faculty of Dental Sciences of a Sri Lankan university. The study included 89 new students to the faculty and their opinions were obtained using a structured questionnaire. The students reported that they were subject to mostly verbal abuse, followed by sexual harassment, which was verbal (e.g. sexual comments, jokes), and least of all is physical abuse. Though this study is the first systematic study to investigate ragging in a Sri Lankan university, the present study differs from it by investigating the influence of ragging on students' educational activities, while Premadasa et al. focused on verbal and emotional abuse.

In fact, ragging in Sri Lanka has caused deaths, forced junior students to commit suicide and also, in a few instances, resulted in students becoming paralysed. Hennayake (2008; 2009) describes other attitudinal problems created by ragging in Sri Lankan universities. He mentions that senior students advise juniors not to maintain any kind of relationship with lecturers, and not to ask any question in the classroom. Even though many of the features Hennayake (2009) describes are found

in this study also, his argument is based on experience and assumptions not based on any empirical evidence. Moreover, he considers ragging to be a result of the involvement of antigovernment political parties (i.e. JVP – Janatha Vimukthi Peramuna, a Sinhalese political party which believes in Marxism, also described in Wikipedia as a ‘Marxist-Leninist political party in Sri Lanka’) in the university. Nevertheless, such political involvement at FAS was not likely as the students were predominantly Muslims at the time of the study and the JVP was rooted mostly among the Sinhalese students.

Weeramunda (2008) studied student violence and indiscipline in universities in Sri Lanka. In his study, it is revealed that most of the unrest in universities arises because of ragging related incidents, particularly when the authorities try to punish the students who are involved in ragging. Even though he cites a study (Wijekoon Banda, 1995, cited in Weeramunda, 2008) that was carried out to look into the sociological aspect of ragging, the wider social or psychological implications of ragging have not been studied, as he states:

Obviously, neither the author nor any other academic or researcher has gone into the negative aspects of the phenomenon or its wider social, political and psychological implications. (Weeramunda, 2008: 24)

Despite the limited number of studies in Sri Lanka, there are a few in India, the neighbouring country. Nevertheless, those studies that describe ragging explain the harm done by senior students to junior students in terms of loss of life and other physical abuse but they rarely address the affect on learning by changing attitude. For example, in a research report on ragging published by the Coalition to Uproot Ragging from Education (CURE), of the 211 incidents reported between 1998 and 2007 in Indian colleges and universities all address physical harm. However, this study brought to light another hidden side of ragging which has not been the focus of

attention so far but which influences considerably the students' learning activities, through negatively influencing student attitudes.

Even though lecturers and administrators are also aware of ragging at FAS, they did not have an understanding of the fact that senior students influence junior students' learning by means of changing their attitude and providing inaccurate notions about lecturers. This is the first study in Sri Lanka to have unearthed that fact that ragging influences the learning of the students by restricting classroom participation, and to my knowledge no studies in Asia have attempted an investigation along this line. The outcome of the study suggests that future research is badly needed to investigate further the social and psychological face of ragging, and this study acts as a precursor for a detailed study needed in this area in the future.

Having discussed how the influence of senior students through ragging affects lecturer-student interaction in the FAS classroom, next attention is paid to how students' passive behaviour and attitudes affect their classroom participation.

7.2.3 Students' passive behaviour and attitudes

In this section, I am going to discuss the reasons for students' passive behaviour and their attitudes in relation to their lack of participation in classroom discussions. I discuss two reasons: the influence of the school environment and the cultural influence.

Influence of the school environment

In this study it was found that students were very passive in the classroom. They asked only three questions in the observed lectures and answered questions only in certain lectures. In Sri Lankan contexts, even though, so far, no studies have been

carried out to investigate how students' behave in university classrooms in terms of their classroom participation, some studies have looked at the pattern of students' interaction in school classrooms. One such study reports that the reasons for the passive behaviour of students are the teacher dominance and teacher centred classrooms in schools throughout their entire school life (Premawardhena, n.d.). Based on this it can be argued that the students who did not have much chance to interact in the classroom and are 'trained' to be passive may continue in their reticence at university too.

In contrast, another study in Sri Lanka considers that for effective teaching in Sri Lankan school classrooms, mainly for English Language, teacher dominance, teacher strictness, and mother tongue use are necessary (Karunaratne, 2003). By teacher strictness she means the teacher controls the classroom entirely without allowing students to talk except in answer to the teachers' questions. Karunaratne considers this kind of classroom environment to be supportive and friendly. Though the mother tongue use is supportive for the students in the short term, how the classroom can be friendly is not known. Moreover, such an environment may not be suitable for tertiary level students as the students in this study stated that they liked to interact with lecturers who are friendly. Therefore, one reason that explains the university students' reluctance to interact may be the long term passive learning they have been used to in the schools and when they enter university the twelve years of persistent behaviour may not change easily. Flowerdew et al. (2000) also explain that 'students have passive learning styles inherited from the secondary school system' (p. 125) and I take up their point below for further discussion.

Even though lecturers at FAS tried to encourage students to ask questions, students did not break the monotone of the classroom. It seemed that students' shyness and

language problems did influence them, as earlier stated. Though no Sri Lankan studies have reported on students' shyness, in Malaysian ESL school classrooms, Harun (2009) reports that students were shy to answer because they feared that other students would laugh at them. Harun's finding was similar to the findings of this study. Students in this study also stated that they feared their classmates because they might laugh at them, if their answers were wrong. In addition, in the Malaysian schools some students considered that other students would treat the students who answered questions as trying to show off. Therefore, despite their better English proficiency, those students did not answer questions due to this fear. Though at FAS also some students who are fluent in English could have avoided interaction due to their shyness, they did not report this.

Cultural influence

In addition to this passive behaviour inherited from school learning, there is another belief among students that lecturers should not be challenged. In this study it was found that students considered asking questions while the lecture was going on as inappropriate behaviour and they also thought this could even be an insult to the lecturer. I explained earlier that the influence of senior students also made students believe that asking questions or answering questions in lectures was inappropriate. Some interviewed students who did not consider themselves to be involved in ragging stated that they advised their junior students not to ask questions of the lecturers while the lecture was going on. Instead, they told the juniors to ask questions out of class or when the lecturer came close to them in the lecture. As I stated earlier the three instances the students asked questions in the class were when the lecturers came near these students. This attitude reflects that asking questions of lecturers during the lecture is inappropriate.

This thinking that lecturers should not be challenged can be considered as a culturally embedded behaviour. In many Asian countries, including Sri Lanka, education in the ancient period originates from religious schools, as described in chapter 2. In religious schools, teachers are considered to hold a very high position and are sometimes worshipped³⁰ by students (Weeramunda, 2008), especially in Buddhist religious schools, so asking questions could be treated as an insult to the teachers. Even though the students at FAS did not attend such religious schools, the close cultural mix of the communities, living next to each other, and the mixed student population in the bigger universities would have perpetuated such culturally bound thinking in students.

With regard to the claim I have made above that Asian students are passive in the classroom, Flowerdew and Miller (1995) claimed that the reluctant attitude of Asian students in participating in classroom discussions is believed to be culturally linked to Confucianism. These claims were made based on a study conducted among Cantonese-speaking Chinese tertiary level students taught by NS lecturers. Flowerdew and Miller note that the values of Confucianism emphasise that lecturers' authority should be respected; lecturers should not be questioned, etc. In addition, they claim that Chinese students adopt a receptive role in class and look to the teacher to provide the information needed to successfully pass the course. Further, they consider, it is because of the Confucian values the students are rooted in, that they do not want to expose themselves in a weak position. That is, if they answer questions, they may face the risk of giving a wrong answer, they may worry that their English is wrong, or they do not want to be considered by others as showing off.

³⁰ On special days students give a stack of betel leaves to teachers and worship them as they do for the gods.

With regard to Confucian culture, Biggs (1996) describes Confucian Heritage Culture (CHC). The countries, or the educational systems, in East and Southeast Asia are considered to be influenced by CHC (e.g. China, Taiwan, Singapore, Japan, etc.). These CHC classes are assumed to be authoritarian; students are accustomed to rote learning. However, Biggs, based on several other studies, argues that CHC students are not rote learners. He calls this consideration of rote learners a 'western misperception arising from a mistaken interpretation of a repetitive effort' (p. 63). That is, repetitive learning has been misunderstood as rote learning, according to Biggs. Biggs also considers that CHC learners are able to perform at high cognitive levels in academic tasks and are deep learners, if deep learning is defined as handling the task meaningfully.

Moreover, some researchers have challenged the view of Asian students as reticent, for example by Flowerdew and Miller, as an overgeneralisation (e.g. Cheng, 2000). Cheng argues that the reticence of Asian students is not cultural, reluctance or passivity but that it is situation specific. He states that the reticence arises mainly due to methodological differences in the classroom as well as the language proficiency of students in ESL classes. Cheng explains that those Asian students studied in teacher controlled classrooms where students were trained to be passive and, as a result, they may not ask questions of the teachers. In addition, when these students learn in a foreign environment, which is different from the Asian environment, these students may not ask questions because of their limited language skills.

In a related study conducted at the University of Hong Kong, Liu and Littlewood (1997) found that students did not show such reticence to participate in classroom discussions but rather they expressed their willingness to participate in classroom

discussions. They assumed that alleged reticence observed among students by others is the result of the lack of opportunities available to those students to speak English at school. Nevertheless, the focus of their study was English classes, but not the subject classes where students are considered to be passive. In English classes students may be required to use English as part of the requirement of the lesson, while it is not compulsory in content classes so their argument may be applicable to English classes only.

Similar to this argument, Littlewood (2000) states that students from Asian countries would like to learn through active participation and there is little difference in the attitude to learning between Asian students and European students, even though there are differences at individual student level. Littlewood (2000), similar to Cheng, argues that students in Asian countries do not see the teacher as an authority figure who should not be questioned. He makes this claim as a result of a survey administered among around 2,300 senior secondary and tertiary level students in eight East Asian countries and 349 students from 3 European countries. Of the twelve-point statements structured in a five-point likert scale (5 strongly agree; 1 strongly disagree) Asian students evaluated 2.46 for the statement ‘in the classroom I see the teacher as somebody whose authority should not be questioned’. Similarly for the statement ‘I see knowledge as something that the teacher should pass on to me rather than something that I should discover myself’ students evaluated 2.51. These averages for the European countries were 2.53 and 2.13 respectively, which indicates only a narrow gap between the two groups of countries. Therefore, Littlewood (2000) claims that if Asian students are passive in the classroom, it is rather a ‘consequence of the educational contexts that have been or are now provided for them, than of any inherent dispositions of the students themselves’ (p. 33). His argument corroborates

the findings by Cheng (2000), as previously discussed. Cheng also claims that the passive attitude of the students is the result of ‘unsuitable methodologies and lack of required language proficiency’ (p. 443).

Some of these findings discussed in this section are similar to the situation at FAS, where students reported that they fear asking or answering questions as their English may be wrong and their colleagues may mock them if their answer is wrong. Even though FAS students also believe that asking questions in class is not appropriate, therefore further studies are needed to investigate whether there is any influence of cultural factors. But one plausible explanation for the FAS students’ behaviour may be that those students who had been trained to be passive at school continued to be passive at university too. Though there have been counter arguments against the students’ reticence, I assume that there are gaps in those studies because many such studies draw evidence from English classes (e.g. Liu and Littlewood, 1997; Cheng, 2000), whereas Flowerdew and Miller (1996a) base their argument on content classes. Another weakness is that some studies (e.g. Gieve and Clark, 2005; Gu and Schweisfurth, 2006) are skewed towards Chinese students who study in English speaking countries, whereas there are many other students who learn in their own country from NNS lecturers and, therefore, as I have mentioned more studies may be needed, including in Sri Lanka in the future, before we come to a conclusion on the existence of reticence or any other student behaviour with regard to classroom participation.

Having discussed how students’ passive behaviour and attitude influences lecturer-student interaction at FAS, next I move on to the fourth factor that influences interaction – lecture delivery style.

7.2.4 Lecture delivery style

The overall impression one may develop when looking at the results of this study is that lecturer-student interaction in FAS lectures is rather uncommon. Of the 24 lectures observed, delivered by 11 lecturers, only two lectures delivered by ML2, contained interactional episodes for around one third of the lectures, while others had a few minutes of interaction to virtually nothing.

Moreover, according to the analytical framework developed for this study to classify the 12 transcribed lectures, there were two mixed lectures, five mostly monologic and five highly monologic lectures. As far as the lecture delivery at FAS is concerned, it was mostly teacher centred. Lecturers conducted the lectures as monologic trying to cover the content material within the stipulated time, though their individual styles varied.

Though the status of lecture delivery style in other universities in Sri Lanka has not been investigated, the report published by the Quality Assurance and Accreditation Council (QAAC) of the University Grants Commission makes some indication as to whether the teaching is student centred or teacher centred. For example, it suggests that at FAS a student centred teaching method should be adopted. This recommendation seemed to imply that teacher centred teaching is currently in practice. The lecturing situation as teacher centred is not only common to Sri Lanka but other Asian countries (Kumar, 2003) and European countries (van Dijk et al, 2001) are the same. Lectures are usually delivered in a traditional way which is also known as didactic teaching.

Considering the present status of lecture delivery at FAS, in this section, I am going to discuss how lecture delivery style influences lecturer-student interaction. In particular,

I am going to focus on how lecturers' use of questions and the kind of interactional episodes developed influence the level of interaction in lectures.

7.2.4.1 Lecturers' use of questions

The reason for focussing on lecturers' question is that, in the current study, student questions were limited. Apart from three students' questions, all the other questions were initiated by lecturers so that the focus was on lecturers' questions, though their number was limited. In many of the classes, when the lecturers initiated questions, students answered them only after much effort by the lecturers to prompt students to answer, while in certain classes they were quiet. Though there are no studies that have investigated student questions in Sri Lankan university classes, it can be inferred that there may not be many student questions in the lectures of other universities too. Further, in Europe also a low number of students' questions was found in a study with NNS Biology undergraduates by Pedrosa de Jesus and da Silva Lopes (2009) in a Portuguese university, as discussed in chapter 3. They described this as a passive undergraduate behaviour. Their explanation was that undergraduates use lectures to receive information but not to explore the concepts. Hence, in both FAS and the Portuguese study students became involved in classroom discussion only when invited, but not by 'self-incentive' (ibid: 37). That is, when the lecturers asked them questions, they participated in discussions.

In this study it was revealed that the types of question also have an influence on lecturer-student interaction. As we saw in the findings chapter, 50% of the questions asked in the observed lectures were Knowledge Testing Questions (KTQs). Their function is similar to display questions (Athanasiadou, 1991) in the ESL/EFL classes that are used to check the comprehension of students. In addition, students answered

these questions in two or three words and most of the time these exchanges did not develop into longer connected interactional exchanges. For example, in Biotechnology (BT 3) an interactional episode is given below:

BL1: can you remember from the molecular genetics what is central dogma↑?

BF11: DNA replications

BL1: /ihhu/ [[L1 equivalent of approval]]

BF11: and protein synthesis

BL1: DNA

BM6: [replication

BL1: what else under central dogma↑?

MM6+ F11: protein synthesis

BL1: protein synthesis– ok– today another work for you all go [.....]

In this episode students answer questions as chunk by chunk and also the nature of the questions did not give room for extended discussions. That is, the KTQs, which are mostly used in the FAS lecture discourse, do not provide the opportunity for lengthy in-depth discussions. This kind of interaction occurs not only when the KTQs are used but also when other types of questions are asked such as Knowledge Application Questions (KAQs) and Classroom Management Questions (CMQs). The KAQs were used by lecturers to test whether students are able to apply the knowledge just learnt in a novel situation. Thirty-five percent of the questions come from this category. In appearance the KAQs cannot be separated from KTQs but from the subsequent function they can be classified. That is, for KTQs students draw from their memory, while for KAQs students need to both draw from the memory and also apply that information in a novel situation, as shown in the example below from Physics (PH 5):

ML1: now without simplifying further what we can do is now equalize the real part so equating [...] the real value– equating the real value– what is the real value in this side↑?

MM5: R1

ML1: no– R1 into this will be a complex number and this into this will be a ↑?

MM4: C2 over C1

MM5: \perp C1

ML1: yes that is C2 over C1 only– equal to what is that↑?

MM4 + MM5: R3 over R4

ML1: R3 over [...] R4 so this is our equation number one [...] what is the imaginary values↑?
[.....]

These exchanges occur only after the students, having worked on a task, present their answers or explain the steps to the lecturers. Sometimes, they verbally present the steps before working on the tasks. However, even though there are somewhat connected longer exchanges, the usefulness of the exchanges towards developing students' language or conceptual development is in doubt. This is because the students' answers occur using key words without the use of much language and also their knowledge involved in this question is application according to Bloom's taxonomy of questions. In contrast, the higher order questioning skills could only be practised when teachers or students ask conceptual development questions (CDQs).

The lecturers using these CDQs try to develop concepts in lessons with students' input (Yip, 2004), as discussed in chapter 5. Naturally, it is not my intention to claim that at FAS when the CDQs are used students exercise these higher order cognitive skills. But CDQs may have the potential of achieving these levels in future with appropriate input from the lecturers, giving due consideration to other abilities of students such as language skills, and listening proficiency.

There were only six CDQs that were found from three out of 12 lectures and of those three two lectures were conducted by ML2, whose lectures were found to be more interactive in nature. In addition, in one of BL1's lectures also a CDQ was present. In other words, five of the six CDQs were produced by one lecturer. Another observation is even though ML2 asked CDQs in two of his lectures there is no consistency in the way he used CDQs, because in one lecture the duration of

interaction that occurs as a result of CDQ is 16.20 minutes, whereas in other lecture it was just 1.40 minutes. Even though these two lecturers initiated interaction in the class using CDQs, it is a question for further investigation whether they were aware of the principles underlying different questions, such as using CDQs to develop dialogic interaction.

Admittedly, both ML2 and BL1 expressed that the teaching at FAS should be organised towards student centred teaching and learning. In addition, they also claimed that presently lectures are dominated by monologic delivery. Moreover, ML2 is of the view that he tries to bring out more input from students to structure the lessons by asking them questions. He also claims that students would remember lessons better when they are taught in an interactive manner. However, even though lecturers used CDQs in three lectures, they do not generate a discussion with much enthusiastic student response and build on a concept as theoretically claimed, rather students answered in a manner similar to KTQ; in one or two words, and the lecturers had to probe further to get the required answer from the students. This implies that even the use of CDQs in FAS lectures does not guarantee that interaction is dialogic. For example, I quote from the AS lecture in which the lecturer used a CDQ in the process of discussing the concept quality.

ML2: do you have a phone with you↑? mobile phone what is the model you are having↑? can I see this— 6300 why did— why did you buy this↑? you bought it or you got it some presentation↑? you bought it why did you choose Nokia↑?

MM2: best

ML2: this best. Ok! do you have— phone? What's you have? Nokia?

MMn: [[inaudible]]

ML2: sorry

SA: Chinese

ML2: can I see this?

ML2: ok— why did you buy this one— he is saying the Nokia is the best

MMn: at a one time we can use two sims

ML2: two sims. Any other phones you are having? [.....]

When we look at this extract of an episode, even though the lecturer asks a question which is open for discussion, the answers given by students are very short so their usefulness for language or conceptual development may be in question. This example, along with other examples presented in the findings chapter, demonstrate that the use of CDQs at FAS does not ensure that dialogic interaction takes place.

The brief discussion informed us that at FAS most of the questions asked were KTQs without the benefit of developing longer meaningful interactional exchanges (dialogic interaction). In addition, the presence of CDQs did not ensure the development of dialogic interactions that are useful for students' content and language development. I further analyse the pattern of interactional episodes below with an emphasis on different moves. In this section, I exemplify how the different moves failed to support the development of lengthy interactional exchanges.

7.2.4.2 Pattern of interactional episodes

The interactional pattern I observed in this study is somewhat similar to that which Sinclair and Coulthard (1975) observed from a first language secondary level content classroom in a UK school. Their exchanges were made up of three parts, known as a 'recitation script' (Tharp and Gallimore, 1988): I – R – F – Initiation – Response – Follow-up. Later Mehan (1979) explained that the follow-up move occurs as an Evaluation (e.g. very good, OK) so the use of the evaluation move ends the three-part exchange. Mehan calls this 'I–R–E' – Initiation – Response – Evaluation. Some exchanges were nuclear, especially in the Animal Physiology (AP) subjects in which

there was very low number of interactional exchanges. I give below an example of an episode in the AP subject.

BL1:	what is our mean body temperature ↑?	(I)
SAC:	ninety-eight point four	(R)
BL1:	ninety-eight point four what ↑? Fahrenheit or Centigrade↑?	(E + I)
SAC:	Fahrenheit	(R)
BL1:	Fahrenheit	(E – Evaluation – acceptance)

The purpose of the question in the above extract is to test the knowledge of the students even though it is a very low level question for undergraduate students. BL1 did not provide any feedback to students and the final evaluation comes in the form of repetition of the answer.

Furthermore, the interactional episodes identified at FAS belong to four categories, as explained in the findings chapter: knowledge testing episode, knowledge application episode, concept development episode and classroom management episode. Of these four, the concept development episodes (CDEs), which were supposed to be beneficial for students, were not really very useful discourse-wise for two reasons. The first is that students answered in one or two words and the other reason is that the exchanges are merely extended because of the CR moves. That is, even though the lecture discourse looked interactive in some lectures (e.g. Applied Statistics) most of the moves are consumed by CR moves (Clarification Request) so that interactional episodes look longer but without enough discussion of content matter. The occurrence of plenty of CR moves is called CR expansion moves in this study, as explained in the findings chapter. In addition, the shorter student answers make the response move (R) partial, as shown in the extract below:

1. ML2: [...] now next I am going to teach you what is the definition of quality– definitions of quality what is quality↑? because– ok you can– this– theoretical definition is there when I ask you just what is quality what you can say– what is quality↑? [5] what is quality↑? [7] (I – I – I - I) [[repeated initiation move]]
2. MM5: better than (R partial)
3. ML2: sorry– better (CR)
4. MM5: better than the (R partial)
5. ML2: better than the– sorry (CR)
6. MM5: anybody (R)
7. ML2: /uh/? (CR)
8. MM5: better than the bad body (R)
9. ML2: better than– one– better than the (CR)
10. MM5: better than something [.....] (R)

This extract commences with a CDQ in an attempt to define the concept quality expecting the students' contribution. The moves 3, 5, 7, and 9 occur as the lecturer asks for clarification because students answer inaudibly or in incomplete sentences, so I have marked the latter as R partial. The reasons for students' indistinct and partial answering may be that they were afraid to answer or they did not know the answer. The CR expansion move is prevalent as the common move in interactional episodes that extend beyond the IRF. Similarly, I explained that the repeated initiation move is found in many of the interactional exchanges at FAS. Lecturers used this repeated initiation move in order to compel the students to answer their questions. Despite this attempt, students answered only briefly.

The basic argument put forward by researchers (e.g. Mortimer and Scott, 2003) is that IRE structure is authoritative during classroom talk. That is, when the teacher gives an evaluation the exchange is complete. But, instead of evaluation (E), when feedback (F) is given, students tend to elaborate their answers further and those episodes or exchanges can be dialogic in nature. At FAS the lecturers mostly provided evaluations instead of feedback (F) in the CDEs. Nevertheless, in addition, they used another initiation move immediately following the evaluation move to encourage students to

answer further. I give below an excerpt of an episode where lecturer (ML2) provides evaluation, followed by initiation:

- ML2: but now– because in the market you know most of the sugars are good in quality but earlier days– no we see for that– quality of the sugar so when you– when you talk about the quality of the sugar what do you see↑? (I)
- MM3: [[inaudible answer]] (R)
- ML2: sorry↑? (CR)
- MM3: size (R)
- ML2: size ok we will write it we talk about sugar we talk about size then↑? (E – Evaluation + I)
- MM8: colour (R)
- ML2: colour very good then↑? (E – Evaluation + I)
- MMn: cost (R)
- ML2: sorry↑? (CR)
- MMn: cost (R)
- ML2: sorry↑? (CR)
- MMn: cost (R)
- ML2: cost ok we will keep it aside cost then↑? [.....] (E – Evaluation + I)

This episode is similar to the Mortimer and Scott's (2003) secondary science classroom episodes, as the basic structure of the exchanges are I–R–E (Evaluation). They describe this kind of episode as an 'interactive authoritative communicative approach' (p. 40). Mortimer and Scott explain that the exchanges that occur in a cyclic I–R–E (the evaluation is followed by another I) are authoritative, as the teacher tries to push the students towards the desired answer. Similarly, this episode that occurs in an undergraduate level science classroom, where students learn in the medium of English as a second language, is also authoritative, despite the lecturer's attempt to encourage students' participation through a repeated 'I' move.

The responsibility for turning the interactional episodes into authoritative ones lies not only with the students, but also with the lecturer. In these lectures, none of the lecturers requested modified language use or expanded on the students answers'. As previously found by Musumeci (1996) and Pica (2002), which I discussed in the

literature review chapter, lecturers provided the modified answers without asking students to modify their answers. For example, as shown in the extract below, when a student says ‘repeat’, the lecturer corrects it as repair. Similarly, ‘Chinese phone repair’ in move 8 was elaborated by the lecturer and when a student says ‘lifetime’, the lecturer modifies it as ‘lifetime use’ (moves 12–13). In this way the lecturer provided the modified input (or answers) without giving the students the opportunity to modify their answers.

1. ML2: right now, most of the people here agreeing Nokia is best right↑? why↑? how do you know that Nokia is best↑? have you done any test have you removed all the parts and– no↑? so how do you know that Nokia is the best↑? (I)
- [.....]
6. MM2: if we make a mistake we can re– rep–‘repeat’ (R)
7. ML2: repair ok (E – Evaluation + F – Feedback)
8. MM2: Chinese phone repair [[overlapped by teacher]] (R)
9. ML2: can’t repair the Chinese phone– one reason he says is Nokia can be repaired easily whereas Chinese you can’t any other reason? (E + I)
10. MM 7: lifetime (R)
11. ML2: sorry (CR)
12. MM 7: lifetime (R)
13. ML2: lifetime use– oh– how do you know that lifetime use because if it is lifetime use [.....]

Moreover, I explained in the literature review chapter that in content classes teachers provide feedback or explicitly request clarification so that students repeat or modify their answers. For example, I have shown in chapter 3 under sub section 3.7 how the feedback moves are used in exchanges in Haneda’s (2005) study. But such repetition was rarely provided in FAS lectures. The reason for the absence of such moves may be the result of lecturers’ unawareness of the means of initiating, and maintaining interaction. In addition, lecturers may think that assisting students with their language development is not their task. BL1 stated that teaching English is the responsibility of

the ELTU and also ML1 was of the opinion that the faculty should focus on teaching the subject and not on the development of language. He states:

Can we make the students who learn ten fifteen years in Tamil and make them competent in English? We can teach the things in English but we can't teach English. (interview, ML1)

In contrary other lecturers (e.g. ML2 and BL2) think that helping students with their answers could be an encouragement given to students to increase their participation in discussions. In fact during the interview students mentioned that they expected their lecturers' help when they find it difficult to answer questions. In addition, ML2 was also of the opinion that he encouraged students by assisting them when they answered.

Therefore, the review indicates that at FAS developing longer meaningful interactional exchanges (dialogic interaction) may have been difficult due to students' lack of knowledge and attitude but it could also be argued that lecturers lack the required knowledge to develop dialogic interaction. Nevertheless, a few were already attempting to develop interactional exchanges (though not dialogic), while others were willing to do so. This was made clear as BL2 whose lectures had limited interaction as shown in the findings chapter, expressed her willingness to learn how to develop interaction in her lectures.

Even though the subject review reports of FAS state that student centred teaching and learning is not available and suggest that it should be practised, they do not detail how it can be practised. Neither did the staff development programme provide specific training in how to teach in EMI classes interactively. Therefore, findings of this study may shed light on the need for more interactive teaching at FAS.

7.3 DQ2. Are interactive/dialogic lectures important for lecture comprehension (or learning) at FAS?

I have already argued that interactive/dialogic lectures are important for lecture comprehension and language development in chapter 3, but those dialogic lectures were not available at FAS, except very few interactive episodes found in mixed lectures. In considering a different kind of lecture delivery at FAS, I develop an argument whether interaction is needed for lecture comprehension below.

7.3.1 The importance of interaction for lecture comprehension

Whether lecturer-student interaction is important for lecture comprehension is a difficult point for discussion. As I indicated earlier in the literature review chapter, lecturer-student interaction in the classroom promotes student learning. However, there is no evidence that students would not understand in the traditional lectures where the lectures are delivered in a didactic manner. At FAS, the reality of the practice indicates both yes and no.

On one hand, students stated the benefits they received when the lecturer engaged them in classroom interaction mainly in the Applied Statistics subjects. They mentioned that the subject was easy to understand, they could attend lectures enthusiastically, lectures were interesting and also they feel confident to speak in English out of the class also. Though these benefits could be found in any other lectures, they particularly referred to the Applied Statistics lecture, which was conducted somewhat interactively. The lecturer also (ML2) mentioned that his students tend to talk to him in English whenever they met him outside the classroom also. That means lectures conducted in an interactive manner are likely to be preferred by students and are also of benefit to students for ease of comprehension and in

developing their interpersonal skills, even though the lecture delivery style at FAS could be more interactive to bring forth the potential benefits to learning at FAS.

On the other hand, FAS students could easily understand the subject even without interaction when the lecturers adopt the approach called *highly monologic-content transfer/student beneficiary approach*, which I described in the findings chapter previously under approaches to lecture delivery. This lecture delivery had very little or no interaction. In addition, lecturers considered students as passive learners who could not survive in the academic environment without explicit assistance from the lecturers. This means they assumed that students needed assistance in understanding lectures and taking down notes. Little or no self-initiative of the students was expected. The lecturers took all measures in order to make students happy in their classes and they provided the content knowledge as easily as possible without any difficulty or challenge. These activities included explanations of content matter in both English and the L1, dictating notes slowly in short chunks, repeating words or phrases, pausing for students to take down notes, writing lecture notes on the board, etc.

I provide below an extract of an additionally observed lecture³¹ in which the lecturer tries to provide all sorts of assistance to students including repetition, long pauses, short chunk by chunk dictations, and explicitly mentioning ‘full stop’ and ‘comma’ to instruct students when to use them in the text.

[[00:06:07]]³² [...] so you can write– eh– the note texture means [...] texture means [...] the visual appearance [6]³³ of the surface of a material [5] such as fabric [7] or [...] the shape [...] *full stop*³⁴ [...] the visual appearance of a soil [5] is called [...] its texture [...] *full stop* [...] the texture depends upon

³¹ In addition to the regularly observed 12 lectures

³² Beginning time

³³ Timed pause

³⁴ Italics are my own emphasis

[5] the particle size [...] comma [...] shape of particles [...] and gradation of particles [...], *full stop* [...] the textural classification [...] incorporates [...] only [...] particle size [...] *comma* [...] as it is difficult to incorporate [...] the other two pa- parameters [...] so even though- eh- if you discuss the texture- [[0:08:40]] so what is the texture of the soil sample ↑? [[asking a question]] size shape and the arrangement- right↑? [.....] (optional lecture extract, italics are my emphasis)

This kind of lecture delivery was found in the pilot study too in which a lecturer was even more helpful to the students by writing the notes on the board, while dictating.

[[00:04:44]] so- [...] write the notes- right [[Lecturer writes the notes on the board, while dictating]] [...] the positive terminal [...] positive terminal [...] of the battery [5] is connected [...] to P region [5] of the [...] semi conductor [...] and [...] the negative terminal [...] the negative terminal [5] to the [...] N region [...] as shown [...] in the above figure [5] then [...] the junction [5] is said [...] to be [...] forward [...] bias [...] the junction is said to be forward bias [...] right↑? [.....] [[00:06:16]]. (a lecture extract from the pilot study)

These two lectures were delivered by junior lecturers. During the regular lecture observation for the main study also it was noted that a lecturer (senior lecturer) explained in the mother tongue when a student asked him a question in the mother tongue. In addition, it was also identified that he switched to the mother tongue whenever he was explaining a difficult concept. Therefore, I consider this approach could be more common to FAS. Nevertheless, there is a need to investigate the situation at FAS as well as of other universities, where junior lecturers also teach in English to science undergraduates.

When the lecturers, therefore, adopt the *Highly monologic-content transfer/student beneficiary approach* students may be able to understand the lectures easily. Nevertheless, the question remains as to whether students can receive other benefits, such as development of their oral skills (or interpersonal skills), and more importantly development of conceptual knowledge, in the absence of opportunities for them to use the language in the classroom or articulate their knowledge. As Swain (1995) argues, opportunities to practise the language in the classroom are important to develop the language. Hardman also (2008) explains the constructivist view of learning. He states

that according to the social constructivist view of learning, classroom discourse is not effective unless students play an active part in their learning. In this kind of learning students are given the ‘opportunity to assume greater control over their own learning by initiating ideas and responses’ (p. 134). In a similar vein, the approach called *highly monologic-content transfer/student beneficiary approach* may not be beneficial for students as it does not involve students actively in learning.

Another problem that surfaces as a result of this kind of teaching is, as reported by a few lecturers (e.g. ML1, BL2), that students become passive learners and expect the same thing from other lecturers too. Moreover, whenever lecturers wanted students to be active in their classes (e.g. to take down their own notes), these lecturers are considered to be tough lecturers (i.e. they place high demands on students). Nevertheless, though ML2 conducted his classes interactively, his teaching was liked by the students, as mentioned earlier, yet a more in depth investigation into this complaint is needed in future studies.

Therefore, even though the *highly monologic-content transfer/student beneficiary approach* looks beneficial for students in the short run, it may not help them in the long run as the review indicates. Further, I revisit the advantages and disadvantages of interactive lectures based on the previous argument in chapter 3 in order to strengthen the argument for the importance of interaction in learning.

I explained in detail in chapter 3 (section 3.5) the studies undertaken by van Dijk and Jochems (2002), van Dijk et al. (2001), Kumar (2003), and Prakash (2010). Their studies have indicated that there are positive results for the argument that interaction in lecture classes benefits student learning. In addition, in the same literature review chapter I explained how interaction helps language development. On the other hand, I

briefly mentioned that interaction in the classroom brings certain disadvantages too, as argued by, for example, Lake (2001) and Huxam (2003) and I ended with a quote from Murphy and Sharma (2010) which I repeat here: ‘interactive elements that might possibly enhance the likelihood of successful student learning need careful examination’ (p. 116).

In this study it was highlighted that mere interactive lectures are sometimes not useful for students at FAS to solve their two predominant problems: difficulties in understanding lectures and limited oral skills. Moreover, a lecture delivered interactively could carry interactional exchanges as a recitation script with short student answers, as I showed earlier. These exchanges may not be beneficial to develop either the language or the concept. Rather a dialogic lecture based on the principle of dialogic teaching (Alexander, 2006) could be a suitable alternative to solve the problems of students at FAS. I discuss at length dialogic teaching in chapter 3. Having established the need for interactive/dialogic teaching at FAS now I move on to DQ3.

7.4 DQ3. How similar is the situation at FAS to other L2 contexts in Sri Lanka and Asia more broadly with regard to lecture comprehension and lecturer-student interaction?

7.4.1 Lecture comprehension and lecturer-student interaction at FAS

In this study the students and lecturers reported that students faced lecture comprehension problems but they did not discuss their comprehension problems with the lecturers in the classroom. Of the reasons found that affected students’ lack of discussion in lecture classes, language problems and the influence of seniors through ragging were found to be influencing student participation, along with the students’ passive behaviour. Added to this, the traditionally oriented lecture delivery style of

the lecturers made the lectures monologic. In these monologic lectures, lecturers delivered the lectures in an authoritative manner without involving the students or soliciting their views.

In this section, I am going to discuss lecture comprehension and lecturer-student interaction at FAS in relation to universities in Sri Lanka and further afield.

7.4.1.1 Studies of lecture comprehension at universities in Sri Lanka and further afield

Lecture comprehension problems may be common to all rural universities in Sri Lanka where the medium of instruction is English. The reason for this assertion is that most of the students who enter rural universities in Sri Lanka have studied their entire school studies in their mother tongue. Their exposure to English is as a subject from grade 3 to 12 only. However, I explained in chapter 2 the problems in English education and noted that the English proficiency of students who enter universities is not satisfactory. Only around 35% of students passed the GCE O/L English language examination, in the year 2006 on the island (Department of Examination, 2009) after studying English for 10 years at school. But some urban areas have a higher performance rate (e.g. in the Colombo Zone the percentage pass rate is around 80%). The student intake to FAS comes from the Eastern region where the pass rate is low. I explain in DQ4 that of the entire intake to university 40% of the students are admitted to universities that are located in rural Sri Lanka. Further, it can be claimed that these rural students' English proficiency is lower than that of their urban counterparts. As I mention in DQ4, there is an acute shortage of English teachers in rural areas, while they are in excess in urban areas. These reasons also contribute to the students' difficulties at university.

In Sri Lanka, there is only one known study into students' lecture comprehension ability at tertiary level, conducted long ago by Sally (1985). The study exposed Engineering undergraduates to an experimental course in listening comprehension. After exposing students for eight weeks to different lectures their lecture comprehension was measured, at this stage it was found that students' have difficulties in understanding vocabulary, prepositional phrases and phrasal verbs.

Though academic listening has been an important area for study, it has not been the subject of a great deal of research in non-English speaking countries. For example, Flowerdew (1994) compiled a book called 'Academic listening: Research Perspectives'. Of the 13 studies reported in his book only one was conducted in Hong Kong, while other studies focused on the NNS students studying along with NS students in Western universities (e.g USA, UK).

Moreover, the research focus on lecture comprehension (EMI context) is higher in non-English speaking European countries than in Asian countries, particularly South Asian countries (e.g. Sri Lanka, India, Pakistan, Bangladesh, etc.). I describe later in the sub section on English medium instruction that in the European context Vinkie et al. (1998); Airey and Linder (2006); Sert (2008); and Hellekjær (2010) have conducted studies on EMI with regard to lecture comprehension, while in Hong Kong Flowerdew and colleagues carried out studies, but lecture comprehension studies in Sri Lanka, India, or Pakistan are rare.

In order to validate my above claim of limited lecture comprehension studies in Asian countries, I conducted an 'advanced search' through Proquest CSA LLBA (Linguistics and Language Behavioural Abstract) for journal articles on lecture comprehension in Sri Lanka, India, Bangladesh and Malaysia individually with the

parameters of ‘lecture comprehension’ and the country name as key words for the period 1985 to the present (mid 2011) in the Social Science subject area. But the search did not produce any results, except the ‘scholars³⁵’, which were not relevant to the current study, while the search ‘Hong Kong’ produced 4 journal and peer reviewed articles. In addition, I searched through ‘SciVerse-Scopus’, Sage online, Ingentaconnect, ScienceDirect data bases for ‘lecture comprehension’ or ‘listening comprehension’ for those countries individually. Nor did this search produce any results for lecture comprehension studies in those countries.

Furthermore, I manually searched the archives of the *Malaysian Journal of ELT Research* for the period 2005–2010 and also *The English Teacher*, a journal published by MELTA (Malaysian English Teachers Association) for the period 1987–2008. This research resulted in finding a study conducted in Malaysia by Othman and Vanathas (2005) in ‘The English Teacher’. Othman and Vanathas (2005) investigated the influence of background knowledge on lecture comprehension among the students of a private university in Malaysia and found that topic familiarity is an important aspect in listening comprehension. As the objective of their study is different from the objectives of the current study, I have not described the study in detail.

In Hong Kong, Flowerdew and Miller (1996b) investigated Hong Kong Cantonese speaking BA students’ on a BA TESL course. Similar to the findings of this study, those students also had comprehension problems. In Flowerdew et al’s (2000) study students reported that understanding lectures is difficult due to the speed of delivery, new terminology and concepts and difficulty in concentrating. In addition, students in the Hong Kong study also reported that they did not ask any questions in the lectures

³⁵ A listing of relevant scholars working in the subject area

to solve their comprehension problems because of their language problems, shyness, and it was also found that students' passive learning styles inherited from the secondary school system influenced their participation in lectures. In the present study though students considered new terminology and listening difficulties as problems, they considered speed of delivery as less important than the others. In addition, they considered lecturers' lecture delivery style (e.g. pronunciation, explanation, lecture organisation, etc.) to have a large influence on their lecture comprehension. Furthermore, the influence of senior students through ragging is more pronounced in FAS lectures though it was not investigated in other contexts.

Miller (2009) in another study among Hong Kong Chinese English medium Engineering students investigated the perception of students towards lecture comprehension. The students reported that they wanted lecturers to deliver lectures using simple English to facilitate their lecture comprehension and also change the lecture delivery method to interactive from chalk and talk. In addition, using visual aids and lecture handouts were also important for them. In the present study students also reported the same, but the fact that ragging has an influence in lecturer-student interaction is also applicable to the Sri Lankan context.

7.4.1.2 Studies of lecturer-student interaction in Europe and Asia

As we saw in the findings chapter, interaction was limited in the FAS lectures. In the absence of students' questions, lecturers initiated most of the questions. Lecture delivery at FAS was mostly monologic and it can be claimed that the situation is the same in other universities. However, no previous studies have investigated lecturer-student interaction at the tertiary level or teacher-learner interaction even at secondary level in Sri Lanka.

The studies that have investigated lecturer-student interaction in Asian countries in the L2 context are limited and mostly focused on medical students (e.g. Kumar, 2003; Prakash, 2010). These studies tried to make an empirical link between interaction and students' academic performance, while an in-depth knowledge of lecturer-student interaction is still not available in South Asian countries (e.g. Sri Lanka), especially in the Sciences and Humanities.

Lecturer-student interaction has been investigated in European tertiary level content classes with NS lecturers and NS students of Dutch. Though these studies are experimental in nature and aim to establish how developing interaction in lectures favour students' academic performance (van Dijk et al., 2001; van Dijk and Jochems, 2002) or how interactive lectures result in enhanced interpersonal features in lectures (Morell, 2004), in those studies the discourse level details were not analysed to discover to what extent lecturers practise interaction in lectures, or more importantly the extent of dialogic interaction. Moreover, dialogic interaction, which goes beyond interaction to conceptual development through interaction, has mainly been investigated in secondary level European school classes (Alexander, 2006; Mercer, 2007; Aguiar et al., 2009). The term dialogic was first used to analyse the interactional episodes in secondary level lecture discourse (e.g. Mortimer and Scott, 2003), but at tertiary level very few studies have dealt with dialogic teaching.

Pedrosa de Jesus and da Silva Lopes (2009; 2011) carried out studies based on dialogic interaction with Biology undergraduates and their professors in a Portuguese university, as explained in the literature review chapter. In the 2009 study it was found that teachers who adopted a student centred approach asked questions to maintain longer interactional exchanges. In contrast, the teachers who adopted a

teacher centred approach had longer monologues with fewer interactions. Further, most of the questions were asked by the lecturers, and students' questions were few. Their findings corroborate the findings of the present study since in the present study also all the questions were asked by the lecturers. Further, in this study when ML2 used conceptual development questions and involved students in interaction, there were somewhat longer interactional exchanges between the lecturer and students though their communicative value was in question. Students also reported that those lectures conducted by ML2 were interesting and easy to comprehend. But in both studies the usefulness of these longer interactional exchanges is a matter for discussion.

In this DQ, I have discussed the situation of lecture comprehension and lecturer-student interaction at FAS and compared it with available studies within the country and region. Students at FAS did not utilise lecturer-student interaction to overcome their lecture comprehension problems, despite its benefits for content and language development. Though some of the factors which influence lecturer-student interaction at FAS are similar to other contexts, a few factors (e.g. ragging) have not been investigated in other contexts for their influence on lecturer-student interaction.

7.5 DQ4. What are the implications of the results of this study for lecturing (and research into lecturing) in L2 contexts in Asia and further afield?

Even though it was assumed that EMI at universities may help to improve the language proficiency of the students, the reality is not so. As the findings in this study and subsequent discussions on EMI indicate the English proficiency of the students who have followed their degrees in EMI is not as high as expected at the end of their course. In addition, students seem to have lecture comprehension problems, coupled with their limited language proficiency.

The important outcome of the study, which was undertaken in an EMI context, is that at FAS the lecture delivery is mostly monologic, so that opportunities for students to interact in the classroom were limited. However, the few lecturers who attempted to develop interactive lectures were only partially successful for various reasons relating to the students as well as the lecturers, such as students' lack of cooperation in discussion and also it seemed that lecturers lacked the knowledge of dialogic interaction.

Although several measures can be implemented to improve the situation at FAS, this study considers changing the lecture delivery style. However, each measure suggested has its own limitations as well as challenges. Also, the root of the problem is coupled with English education in schools and the EMI at university. Although EMI is a fait accompli, as I discuss below, identifying the problems EMI has may help to address the existing students' issues in a better way. Moreover, in countries in the South Asian and Southeast Asian regions (e.g. Sri Lanka, India, Pakistan and Malaysia) students follow their degrees in English, while most of their school studies are in their mother tongue. Even though it can be assumed that the problems these students face may be similar, a closer look at the situations is necessary and therefore initially I am going to embark on a discussion of EMI before I talk about the implications.

7.5.1 EMI in Asia, Europe and Sri Lanka

7.5.1.1 Overview of EMI in Asia

In this review, I am going to look primarily at Sri Lanka, India, Malaysia and Hong Kong, where the changes in the medium of instruction are visible. When we compare the situations in Sri Lanka and Malaysia, both located in the Asian region, there can be several parallels observed between these two countries, mainly in terms of the

language policy. English was introduced to these countries by the British during the period of British colonial rule. When the British left these countries, usage of English in the society was at its peak. Later for political reasons in Sri Lanka, '*swabasha*' (mother tongue) was introduced in the 1950s, the government, through the Official Language Act No 33 of 1956, made Sinhala the only official language of Sri Lanka (Raheem and Ratwatte, 2004), which later affected the entire education system including universities. We have already seen these changes in detail in chapter 2.

Similarly, in Malaysia, since 1957 Bahasa Melayu (Malay) has been the national and official language (Gill, 2006) and soon afterwards through the Education Act 1961, Bahasa Melayu was installed as the medium of instruction in schools, while English was reduced to the status of a second language from its height as the medium of instruction (Foo and Richards, 2004). In Malaysian universities also in 1983, Malay became the only medium of instruction for the first time (Mead, 1988, cited in Tsui et al., 1999), though it is not known to what extent Medicine and Engineering courses were conducted in Malay.

These changes were not permanent in either country, because later they tried to reinstate English as a medium of instruction in schools and universities. In Sri Lanka the government wanted to introduce English medium instruction in schools in the year 2000, as an optional measure. Similarly, in Malaysia English was introduced for teaching Science and Mathematics in schools in 2002, while the mother tongue was used to teach other subjects.

At roughly the same time these changes were taking place in Sri Lanka and Malaysia, in Hong Kong an opposite change was taking place. The English medium schools started to switch to mother tongue instruction from 1998 as per the decision of the

ministry of education (Tsui et al., 1999) for the reason that the mother tongue is the 'best medium for learning' (p. 196), though some 114 schools were allowed to continue in English in the year 1999 as they satisfied the criteria required to conduct EMI. Some of these criteria were higher students' and teachers' language proficiency, and the availability of bridging courses. This change was later followed by Malaysia, which decided to abandon its policy of teaching Mathematics and Science in English and reverted to Bahasa Melayu in national schools and Chinese and Tamil in vernacular schools (The Star online, 9 July 2009). This reverse is to take effect from 2012 in Malaysia. The motive behind this change is described as political to satisfy those, especially Malay Muslims, who wanted a return to Bahasa Melayu, while the government claims that the change is necessary because there are not enough competent teachers to teach those subjects. The government also states that as a result of the shortage of competent teachers, students' mastery of English during the entire policy was around 3%, while the level among rural students was even lower.

Though India was decolonised like Malaysia and Sri Lanka, the importance given to the teaching and learning of English has not reduced over several decades, despite policy level changes. Tsui et al. (1999) explain that the University Education Commission Report of 1949 suggested replacing the medium of instruction from English to any Indian language as early as possible in higher education. In addition, the education commission (1964–1966) advocated replacing English with the mother tongue (regional language), while it approved that English can be taught as a subject. Despite these measures, Tsui et al. (1999) further state that in India English was adopted as a medium of instruction at undergraduate level, while the regional languages are an optional medium of instruction in many states. In addition, they mentioned that English was the sole medium of instruction in small states. The reason

for the high priority for English was, they considered, unlike Malaysia, government intervention was less strong in India.

Graddol (2010) studied the situation of English education in India and found that a certain level of proficiency in English is increasingly regarded as an entrance requirement for university, as in other European countries, and some Asian countries (e.g. China). Even though a score equal to IELTS 4.00 is desirable, reaching this target could be a challenge in India but a minimum level is yet to be decided (ibid), though I later quote Graddol who argues that levels below IELTS 6.5 lead to a loss of educational quality. In addition, in India, he states, one perceived advantage of learning English at school is that it 'prepare[s] for the challenge of university courses taught through English, and provides the main source of students on postgraduate degrees' (Graddol, 2010: 73). In Sri Lanka where EMI is practised too, these assumptions are not true, because in Sri Lanka students are admitted to university to follow any course of study in English without considering their proficiency in English. Most of them, mainly those who enter from rural areas have neither passed the GCE O/L nor the GCE A/L English examinations. I explained their performance in chapter 2. Moreover, they graduate from universities, having successfully passed a degree through the medium of English without achieving even a minimum proficiency in English. Sivasatkunanathan (2006) supports this view by stating:

The very fact that Sri Lankan learners underperform in English, yet they still go through the educational system on the strength of passing specialist subject exams creates a system whereby linguistic deficiencies in English do not preclude students from completing their courses or graduating. (p. 11)

This view expressed by Sivasatkunanathan reflects the situation at FAS. It is worth mentioning that at FAS students who did not pass their school level examinations have passed the university examinations in English. In addition, one student claimed

that even though his language proficiency was not to the standard of grade 5 students, he was able to pass all the university examinations held in English. This has become possible because language is not taken into consideration in assessing students' academic performance.

7.5.1.2 Experience of English medium instruction at tertiary level in Europe and Asia

In this regard, I try to echo the question raised by Hellekjær (2010: 11) as to 'whether the use of a foreign language for instruction has a negative impact on teaching and learning?' and another connected issue raised by Vinkie et al. (1998) as to 'whether the EMI leads to a loss of educational quality.'

Though these questions are suitable for EMI classes in general, there is a contextual difference between Asian countries (e.g. India and Sri Lanka) and European countries. In Sri Lanka, almost all the textbooks relevant to higher education are available in English and also the lecturers have followed their higher education in English. The lecturers are more comfortable with using English terms (technical vocabulary) than the Tamil or Sinhala equivalent, though the appropriate use of language cannot be assured. On the other hand, the situation in Europe is different. Their lecturers have already learnt in the mother tongue and the textbooks are available in the mother tongue. Lecturers in European countries where English is used as a medium of instruction at tertiary level have to switch their medium of instruction from the mother tongue to English.

Nevertheless, despite these contextual differences, the limited language proficiency of students has been a common issue in EMI tertiary classes, and has been the focus of studies in both Europe and Asia. Another common issue has been the limited language proficiency of lecturers, although this has generally been investigated in

Europe rather than Asia. For example, Vinkie et al (1998) found that the switch from Dutch to English produced linguistic limitations in the field of vocabulary, redundancy, and clarity and accuracy of expression on the part of the lecturers. In Vinkie et al.'s study the survey questionnaires distributed among several lecturers were completed by around 130 lecturers from several educational institutes across three disciplines: Engineering, Agricultural Sciences and Economics. The findings reveal that though the lecturers did not feel any difference in teaching in Dutch and English, 67% reported that they had to spend more time in preparation for EMI teaching, while expressing themselves clearly was difficult for around 60% of the respondents. In addition, the observation study, which was conducted by observing and video recording 16 Dutch lecturers lecturing in both English and Dutch, indicates that when lecturers switch from Dutch to English there is a reduction in redundancy of lecturers' subject matter presentation, speech rate, lecturers' expressiveness, and their clarity and accuracy of expression. The authors consider that these factors could affect student learning. The slower speech rate, for example, would reduce the amount of content covered per lecture, though it may have aided comprehension by students. The researchers, based on their findings, stress that only those lecturers whose English proficiency is high should be deployed to teach in the English medium. But the fact is that at FAS the lecturers' English proficiency is not considered as a factor in their appointment.

In India, Graddol (2010) argues that when teachers' and/or students' English proficiency is below C1 (C1 on the CEFR (Common European Framework of Reference) equates to about Band 6.5 of the IELTS test) quality of education will suffer. He further explains that the C1 level allows a speaker, or writer, to communicate with the precision required in higher studies, and to fully participate in

the discussions and debate which form a necessary part of any quality university classroom. Students who are less proficient will be marginalised and tend to fall back on note-taking and rote learning. Graddol makes this claim reflecting Henry Whitehead, Bishop of Madras (cited in Graddol, 2010) who states that most of the university students are struggling to learn because ‘the double burden of mastering their subjects and thinking in a foreign language is far too great a strain on them’ (p. 101).

In the Korean context also language problems have been highlighted. Byun et al. (2010) investigated the EMI policy in Korean higher educational institutes with a view to finding out how it influenced teaching, learning, and other aspects of university operations. Their study revealed that mandatory and unilateral implementation of EMI has led to problems because of the poor English knowledge of students and lecturers. Therefore, they suggest that ‘it is crucial to take a more flexible approach which carefully takes into account the specific situation of an individual institution’, mainly the instructors’ and students’ language capability.

In Sri Lanka, though both students and lecturers’ language proficiency affect the quality of learning and teaching as revealed in this study, lecturers’ language proficiency has not been the focus of any studies in Sri Lanka. Therefore, more studies are needed to investigate the lecture comprehension and related problems of EMI students in Sri Lanka.

7.5.1.3 Sustainability of EMI in Sri Lanka

A debate over whether Sri Lanka needs English medium instruction at tertiary level may seem inappropriate because all Sri Lankan universities have conducted their courses, such as Medicine, and Engineering, in English from the inception of higher

education in Sri Lanka, while for the last two to three decades, courses in Science and related subjects (e.g. Agricultural Science) are also being held in the medium of English. Further, English has been widely used as the medium of administration in most of the government ministries and departments, while the usage of English in the private sector is much higher. It may be suitable to claim that ‘English has assumed its place as the language of communication within the new linguistic global order’ as suggested by Marsh (2006: 29). Moreover, as a recent initiative, the government has urged schools to conduct English medium classes for selected subjects at primary and secondary level, subject to the individual discretion of the schools when they have enough resources, mainly the teachers. In connection to this, I have already pointed out in chapter 2 that schools that conduct English medium classes are limited in number and also these schools are confined to the metropolitan areas of the island.

Though English is already in use as a medium of instruction in Sri Lanka, the problems in English education as well as English medium instruction (EMI) are many so that a discussion on the status and problems of English education and EMI is appropriate. The majority of students undertake their school studies in the vernacular languages, as already mentioned in chapter 2. As a result, the student population entering the university is highly monolingual. When the courses are offered in English at universities most of these students find problems in understanding lectures and participating in lectures, as we discussed in the introduction chapter. Therefore, this situation leads to incompetent graduates in terms of English language skills. It is also claimed that ‘the English language skills of a large proportion of graduates [in Sri Lanka] are well below the threshold expected by private sector firms’ (The World Bank, 2009: E3).

7.5.1.4 Reasons for unsuccessful English education in Sri Lanka

The reasons for the failure of English teaching have been expressed in newspapers in Sri Lanka, though no systematic studies have been carried out so far. Perera (2009) claims that incompetent teachers and improper methodologies are the reasons for the failure of English teaching in schools. He explains that English is taught as a subject not as a language so that students limit their learning within the classroom and their purpose of learning is to pass the examination only, as with other subjects. He further argues, if they were given opportunities to learn English as a language, by being given opportunities to use the language, they too would improve their proficiency. I have pointed to Swain's (1995) argument previously that opportunities for students to produce the language are necessary for language development.

Moreover, the shortage of English teachers, mainly in the rural areas is one of the causes of failure for not only English teaching but also for English medium teaching in schools, as expressed in chapter 2. The political influence in the appointment and transfer of teachers also affects mainly the rural areas. A survey conducted by Transparency International Sri Lanka reveals that premature transfers to better-off urban areas are done through political intervention (Transparency International Sri Lanka, 2009). On the one hand this has been done to satisfy their own supporters, while some teachers have become political victims too. Those who supported the losing political party have to face transfers. A recent statement released by the Ceylon Teachers Union alleges that the chief minister of the Western province has transferred 212 teachers on political grounds (Sri Lanka Mirror, 16 January, 2011) thus witnessing the extent of political influence on the education sector in Sri Lanka.

Another reason for the failure is the absence of overall long term policies in the education sector that lead to not only a shortage of English teachers but also several other problems. For example, in the country the teaching of English has been subject to continuous change. There have been frequent changes in textbooks so that the teachers trained to use a particular textbook at school have to teach another new textbook, without any training available for them for the new textbook. In addition, there has been a disparity in the distribution of resources (e.g. textbooks, teachers). The sector paper published by the Asian Development Bank (2007) on Sri Lanka's education sector also criticises the disparity in access to resources and teacher deployment in less developed provinces, particularly in schools in the conflict-affected Northern and Eastern provinces and in the plantations.

One reason for university students' limited English proficiency is, as found in this study, students do not consider English as important for their studies. It is not compulsory to pass the GCE A/L English for university admission in Sri Lanka and in the university the nature of lecture delivery and examinations make few demands on students' English proficiency, as we discussed earlier in this chapter. Only recently in Sri Lanka a commission appointed to investigate the post-war situation in Sri Lanka (Lesson Learnt and Reconciliation Commission) has suggested making the GCE A/L English paper compulsory for all A/L candidates (The Island, 6 April, 2011). Though the commission has not suggested a pass in English is necessary for gaining admission to university, it is the first step in making English an important subject for university entrants.

Though the failure in teaching English has been realised by the government, no constructive measures have been taken to rectify the situation. A few measures

attempted seem politically motivated but not academically promising. One example is the person appointed to coordinate the introduction of oral English in Sri Lankan schools declares himself that ‘my greatest advantage was that I knew nothing about English teaching’ (Sunday Observer, 18 July, 2010). This clearly implies the status of policy makers in Sri Lanka. The outcome is that the teachers’ guide given to schools for this project contained several errors and had to be rewritten and reprinted wasting limited resources (Personal interview with an In-service Advisor, English³⁶, Kalmunai education zone, April, 2011).

Having reviewed the situation of English teaching at secondary level, now I turn my attention to tertiary level EMI.

7.5.1.5 Perceived advantages of EMI at tertiary level

Several reasons have been cited for the conduct of EMI classes. One general reason is that in Asian countries EMI enhances the graduates’ employment opportunities. Further, in some other Asian countries (e.g. Korea) it is considered to help the internationalisation of students and professors. With regard to this, Coleman (2006) lists seven reasons for conducting EMI in Europe. They are CLIL³⁷ (Content and Language Integrated Learning), internationalisation, student exchanges, teaching and

³⁶ This is similar to a school supervisor

³⁷ CLIL refers to a dual focused educational approach in which an additional language is used to teach both content and language. The focus of the teaching and learning lies in both content and language, though the emphasis could be one or the other at a given time (Coyle, et al. 2010). The basic idea of CLIL is to use a language other than the L1 but in reality English is used as the medium of instruction in wide variety of contexts (Nikula, 2005; Dalton–Puffer, 2007). In addition, CLIL can be referred to as an umbrella term for divergent teaching methods (Nikula, 2005). Despite these differences there has been an underlying similarity among CLIL, CBI and EMI as they all use a language other than the L1 to teach the content matter, though the major focus of the approach may differ. Generally CBI focuses on language learning, as we saw earlier, CLIL focuses on both, while EMI is mainly for content learning though language learning is considered to be an added advantage.

research materials, staff mobility, graduate employability and the market in international students. Further, of these seven reasons, Chang (2010) considers academic internationalisation and CLIL as the most relevant reasons for the Taiwanese context, whereas in Sri Lanka the graduates' employability could be the main reason for the implementation of EMI as indicated in the Subject Review Report, 2008 of an anonymous university (Quality Assurance and Accreditation Council, 2008).

In a pilot study conducted at Chung Hua University, Taiwan by Wu (2006) it was found that students in his study believed that following EMI may help them to develop their language and also to understand the textbooks in English, but 21 of the 35 participants in the study reported that their professors did not ask them to speak in the class. In addition, 75% of the students stated that they answered their examinations in Chinese. Some other problems listed by the students include their difficulties in understanding lectures, expressing their ideas well in content classes and the barrier in communication between the students and professors. These findings call the perceived advantage of developing the language skills into question.

Even though it is theoretically claimed that in EMI classes combining language and content in classroom has advantages, as we saw in the literature review chapter, the evidence is from primary and secondary level content classrooms. Similarly, dialogic teaching has also shown the advantages in primary and secondary level classes only, and tertiary level studies are yet to appear. At FAS also students reported that EMI classes are beneficial when the lecturers involve students in interaction, but these claims should be studied further and tested empirically. Also, empirical evidence is

needed to discover how interaction influences lecture comprehension and favours language development.

7.5.1.6 Perceived disadvantages of EMI at tertiary level

In the Turkish higher educational context, Sert (2008) suggests that though EMI is considered to be useful for language development, it is problematic in terms of the acquisition of the academic content. His study was based on a survey among three universities, which adopted three approaches to teaching: EMI, English aided instruction (EAI), and Turkish medium instruction (TMI). Of these three approaches EMI students considered that the use of English is more effective than the other two groups (EAI and TMI).

Nevertheless, they believed that it helped improve the spoken skills only but not other skills (e.g. listening or writing). Despite students' preference for EMI classes, they also reported difficulties in understanding the academic content, which might affect their ability in critical thinking. In that study the lecturers interviewed also stated that they had difficulties in making lessons lively as English was a foreign language for the lecturers, despite their high level of language proficiency. In addition, students who entered from the countryside with lower English proficiency found it difficult to cope with EMI despite their high academic knowledge.

Hellekjær (2010) considers that lecture comprehension problems in EMI classes occur as a result of students', as well as lecturers', poor language proficiency. Hellekjær investigated the lecture comprehension of three Norwegian higher education institutions and two German universities. The results of her survey indicated that 42% of Norwegian students and 72% of the German students reported lecture comprehension problems. Even though Hellekjær does not claim that the problems in

lecture comprehension occur as a result of EMI, her argument is that the problems that already existed in L1 classes are exacerbated with the introduction of EMI.

In addition to the lecture comprehension problems, there are problems in language use too, as reported in a study conducted by Airey and Linder (2006) among the Physics undergraduates of two Swedish universities. In the interview students revealed that they did not have any problem in following the lectures in English. However, subsequent analysis of videoed lecture material and stimulated recall indicated that students found problems in asking questions because of their poor language proficiency, subsequently, students also reported that they had difficulties in answering questions for the same reason. Based on this, Airey and Linder argue that because of EMI, the students' existing problems have increased. This finding corroborates Hellekjær's (2010) findings, as mentioned previously.

In another dimension, whether many lecturers are willingly involved in EMI or whether they are compelled to teach in English as a requirement of the institution they belong to is also a question for investigation. As revealed in the *Chronicles of Higher Education* (Labi, 2011), one lecturer in Denmark confesses that he does not like to teach in English. His dislike towards English is not because of his inability in the language but because of the fact that the students' cultural differences cause problems in communication and comprehension. In some cases lecturers and students mutually blame each others' language proficiency for any difficulties, as reported in the same newspaper.

At FAS, even though as a policy EMI should be practised in classes, the quality of learning and teaching is in question. One reason is the lecture delivery style, mainly by junior lecturers. The junior lecturers practised a lecture delivery approach called

'highly monologic-content transfer/student beneficiary', in which students are rarely given opportunities to interact in the classroom, while the lecturers used L1, as we saw earlier. On the other hand, even though a few lecturers are willing to conduct classes with lecturer-student interaction, students' low level of English proficiency may hinder interaction with them. In addition, both the knowledge and practice of developing dialogic interaction is lacking at FAS.

The foregoing review suggests that even though EMI has been introduced in many countries in Europe and has been in existence in Asia, it is doubtful whether the benefits claimed for EMI have been witnessed. That is, in Asia one of the reasons for practising EMI is to enhance the English language proficiency of the graduates and lead to their enhanced employability. But the review above rarely indicates that such benefits have been seen in the contexts EMI is being practised. I quoted earlier from the World Bank report that Sri Lankan graduates' English proficiency is lower than necessary. Further, at FAS and other Sri Lankan universities this side of the benefit has not been reaped yet for the reasons just mentioned above, except for a few students who were educated in metropolitan schools and enter university with higher proficiency in English. I have explained in chapter 2 that in rural areas the pass rate in English examinations is very low compared to in urban schools. For example, in 2006 in Colombo, the capital, the pass rate in English at GCE O/L was 80%, while it was 22% for the nearest town of FAS, or 23% for the educational zone where the university is located.

One way the benefits of EMI could be brought is by strengthening the English education in schools, which requires a massive policy change, along with the building of resources, mainly competent teachers. Nevertheless, in order to make meaningful

suggestions, further studies are needed both at schools and higher educational institutes (e.g. universities) to find the practice and problems of EMI. It can be envisaged that unless the universities get students with higher English proficiency the output from the universities will continue to be the same, laying the blame on the inefficiency of EMI or language instructors in the universities. It may be appropriate to call the Sri Lankan government's continued push for all undergraduate programme to be taught in English a 'blind' decision, which is politically motivated to satisfy the donors (e.g. The World Bank). In the absence of any studies that investigate how EMI has impacted on students' content and language knowledge, further implementation of EMI should be considered carefully. By stating this, I end with a quote from Graddol (2010), though it is relevant to the Indian secondary sector, it is also equally applicable to Sri Lanka. He states:

Children do not learn English simply by being taught through English. A hasty shift to English medium without appropriate teaching of the language causes educational failure. Sustained education in, and development of, the mother tongue remains important. (p. 15)

As the backdrop of the foregoing review on EMI in Sri Lanka, it can be further suggested that even though the students' problems in understanding language and content cannot be solved permanently through EMI, a long term policy change along with some other interim measures may be useful at FAS. One such measure is introducing English courses and another one is changing the lecture delivery style/approach. Of these two suggestions, I focus on changing the lecture delivery style as it is closely related to the context of the study, lecturer-student interaction.

7.5.2 Implications of the study

With regard to the implications of the study, even though this study was carried out at a particular faculty of a small university, which is located in a region far from the

capital or other metropolitan areas, the study has several merits too in terms of its generalisability. The situations in the universities that are located away from the metropolitan areas are more or less similar. Out of the 15 universities 8 are located in the rural areas. The rural universities admit around 40% of the total intake, though this figure may change each year. In the year 2009, out of a total student intake of 20,122, 8,520 (42%) entered the eight universities located in the rural areas. Of those universities, four universities annually admit fewer than 200 students to the Science Faculty. For example, in the year 2009 FAS had 66 students, while two other small universities enrolled 109, and had 161 students (UGC). These numbers include both Mathematics and Biology students and when these students split into different subject combinations, the class size can be around 50 or less. This is even fewer at FAS.

The staff members in these universities are young and the teaching is mainly carried out by junior lecturers (or probationary lecturers). For example, at FAS 10 out of 27 lecturers are juniors, while at another university in the rural area 30 out of 42 are juniors (UGC).

The student intake for these universities is mostly from rural areas where the student population is assumed to be trained passively in schools with teacher controlled classrooms. Though studies at tertiary level are lacking in Sri Lanka, studies in secondary level (e.g. Premawardhena, n.d) express that these students are rather passive, as I explained earlier.

The findings of this study and my personal experience in other universities indicate that the lecture delivery in Sri Lankan universities is mostly the teacher centred – ‘chalk and talk’ pattern, while there may be some interactive episodes too, as experienced at FAS, though details of other universities are still lacking. Therefore,

the findings of the present study may have some implications for other universities which share similar conditions (i.e. away from the metropolitan areas, smaller class size, and taught by junior lecturers). In addition, I explain in the last chapter the lecture delivery style at tertiary institutes in different countries is monologic with a low level of interaction between lectures and students. Considering this low level of interaction at FAS and other universities the findings of the study can be applicable to other countries too.

Furthermore, though dialogic teaching has been suggested as a remedial measure to solve students' lecture comprehension problems and the low level of classroom participation at FAS, it is too early to suggest that dialogic teaching could solve students' problems in all English medium classes including FAS. Because the current study has investigated only the existence of the practice of dialogic teaching at FAS in a descriptive manner, further studies are needed to empirically correlate dialogic teaching with student learning. Moreover, dialogic teaching has been under investigation only in the last five years at secondary level and more research and publications are yet to appear from the tertiary sector. Another point that could not be applicable to other contexts is the suggestions for ragging and its influence on educational activities. Though ragging is practised in Asian countries (e.g. India, Pakistan, and Bangladesh), its influence on educational activities does not seem to have drawn the attention of researchers. Within Sri Lanka the situation may be similar, and it is premature to comment that students in other universities in Sri Lanka are also discouraged by the influence of ragging from participating in classroom discussions, without studying the situation in other universities.

Considering these factors, even though several implications can be made for different stakeholders at FAS; for lecturers (to change their lecture delivery), language

instructors (to introduce more relevant English courses), administrators (to create a suitable learning environment and to control ragging), I am going to pick up only the implication for lecturers as I see a change in the lecture delivery as of more importance than the others, as mentioned earlier.

Implications for lecturers

The results of the study and the literature reviewed indicate that changing lecture delivery to interactive/dialogic at FAS may benefit students who have been exposed to traditional lecture delivery. The literature reviewed indicated that if lecturers take an interest in changing their teaching approach to interactive/dialogic, it can be helpful for the students. In addition, this assertion was further corroborated through the opinion expressed by students through group interview.

Even though changing the lecturing situation may be beneficial, it should go along with other measures, such as changing the attitude of students towards lecturers, getting rid of ragging, enhancing their English proficiency, other policy level changes at the faculty, etc. Of all the changes, the change in the lecture delivery seems to be more important because the change in the lecturing approach to interactive/dialogic facilitates not only content learning (or lecture comprehension) but it also provides opportunities for students to develop their English proficiency. This is the basic argument that I have developed throughout this study which originates from FAS students' lecture comprehension problems and limited language proficiency. However, a change in the lecturing approach is not as easily achieved as adopting a new text book. It involves a number of lecturers who have been trained in the traditional method of lecture delivery in which lecturers are in total control of the classroom discourse.

This process needs training and dedication on the part of the lecturers and I discuss the feasibility of implementing interactive/dialogic teaching at FAS in the next sub question on feasibility of introducing interactive/dialogic lectures.

7.5.3 How feasible/appropriate is it to introduce more interactive/dialogic approaches to lecturing in such contexts?

The findings of the study and the literature reviewed in chapter 3 indicate that changing the lecture delivery to both interactive and dialogic may help to overcome the problems students at FAS face. I explain below the suggested intervention strategy to change the lecture delivery style to dialogic from monologic and discuss the feasibility of such intervention as the next step.

In order to change the lecture delivery at FAS, which is predominantly monologic, two activities can be undertaken. One is to change their lecture delivery to interactive and the other one is to incorporate dialogic interaction within interactive lectures. Both these changes could be accomplished by a single measure – lecturers asking more questions that are appropriate to the lecture. That is, any kind of lecturers' questions can initiate interaction in the classroom, subject to the students' cooperation. The extended interactional exchanges could be maintained when the lecturers give feedback instead of evaluation in the I–R–F sequence. The feedback encourages students to modify or elaborate their previous answers and sustain extended interaction (Wells, 1999). Though I easily dictate the changes here I will come to the difficulties later.

Another point is when the lecturers ask concept development questions the interaction can be made more dialogic. I have explained in detail previously in this chapter that when lecturers incorporate students' views into lesson building, the interaction

becomes dialogic; otherwise, it is monologic. Though in a lecture both dialogic and monologic phases are important, monologic delivery only is not useful. Most of the present lecture delivery at FAS is monologic in nature. Therefore, the incorporation of dialogic phases for at least one third of the lecture duration, which was suggested by lecturers at FAS as possible, is useful. The dialogic phases aim to develop concepts with students' cooperation (Chin, 2006) and are essential for effective learning.

In another way, through an intervention the teaching or lecturing approach could be shifted from the present teacher centred approach to a student centred approach. In addition, considering existing lecturing conditions at FAS, a suitable approach to lecture delivery is mixed lectures, which has both interactional episodes as well as monologic (or authoritative) delivery. One lecturer is already practising interaction with CDEs at FAS, and he could be used as a role model for others. Except two lecturers, all the others delivered mostly/highly monologic lectures. As a first step to creating more dialogic lectures, those lecturers could be encouraged to ask questions in their lectures to make their lectures interactive.

The difficulty comes in changing the lecture delivery in a faculty which is mostly influenced by monologic lectures. Lecturers, who already perform several academic tasks, may consider the dialogic teaching approach as another additional burden for them. Convincing lecturers that it is suitable for the faculty and would not cost additional time for them could be a huge task. For this proper training is needed which again involves other resources such as cost and time. However, as far as FAS is concerned there is some potential too to develop an interactive/dialogic approach, as I explain below.

The need for student centred teaching has been realised in Sri Lankan universities, and the recently established Quality Assurance and Accreditation Council of Sri Lanka under the University Grants Commission is a first step towards ensuring the quality of teaching and learning in the higher educational institutes in Sri Lanka. I have referred to some subject review reports prepared by this council, pertaining to the comments made on the teaching and learning earlier in this chapter and they stress the need for student centred teaching. Student centred teaching stresses the importance of involving students actively in the lessons and this could be the basic principle of dialogic teaching too. In addition, the staff development programmes, as I mentioned in chapter 2, train university lecturers to teach in universities. Nevertheless, to what extent they focus on teaching in English medium or towards interactive/dialogic teaching is a question for review. As a participant of the staff development programme revealed (Personal conversation at FAS, June, 2009), there is no special training for teaching in the English medium, though those programmes stress the need for student centred teaching. But the problem is how the trainers and the lecturers perceive what is student centred teaching. In addition, a mistaken assumption is that interaction in the form of lecturer questions and student answers constitutes student centred teaching. I base this claim on the subject review report of one of the small universities³⁸ in Sri Lanka which states:

The present lectures were connected to the previous ones by questions and answering method. It was seen that students were much interactive with lecturer, motivated and kept alive throughout the lectures. It would be better if question were more 'open' than 'closed'(sic). (Quality Assurance and Accreditation Council, 2008)

Even though there is a question how the modalities could be defined for dialogic teaching, the need for a more active role for students in learning is felt presently in Sri Lanka.

³⁸ Refers to the same university mentioned under 7.5.1.5

Another potential for changing the lecture delivery into interactive/dialogic at FAS is that most of the lecturers are young (90% are 45 or below³⁹) and it can be presumed that these younger staff members who have completed the staff development programme to enhance their lecture delivery may welcome some innovative measures compared to the older staff members, though this is my personal opinion. Also, a few of the lecturers already practise interactive teaching, but not dialogic. In the interview it was revealed that three of the four interviewed lecturers expressed their willingness to engage in interactive teaching. In addition, students also stated that they liked classes conducted interactively. Another important merit for FAS is that interactive teaching is considered to be suitable for small classes (Murray and Brightman, 1996; Flowerdew et al., 2000) and usually the class size at FAS ranges from 5–50. However, all these factors would not make the introduction of interactive/dialogic teaching a simple proposition. The major challenge is acceptance and accommodation by the lecturers. As Murphy and Sharma (2010) state ‘lecturers may or may not be ready or adequately equipped to be party to such changes in their teaching practices’ (p. 119).

Any change in the existing situation is not without its challenges. The lecturers may not like to change their delivery or they may find it difficult to change their delivery to dialogic. Any change in the educational activities should be implemented through a collaborative effort between those who propose change and those who implement it (Macnab, 2003). Otherwise teachers (or lecturers) may consider ‘a sense of being alienated by educational policy change’ (Proudford: 1998: 149). In this case also the attempt to change the lecture delivery style could be considered as something that is

³⁹ Most of these lecturers graduated in the year 1995 or later. That is, they were around 27 years old when they were recruited in 1997 and now they are in their forties.

imposed on them. Pedrosa de Jesus and da Silva Lopes (2011) found that changing the questioning pattern of the teachers was easier than changing the teaching approach of the lecturers. That is, those teachers who adopted a teacher centred approach continued to maintain that approach through their three year study period despite there being changes in the way they asked questions.

Therefore, continuous discussion and planning is necessary to make the changes a success. Teachers may adopt change under the right conditions such as an innovation which is practical, has support from the top and other teachers, and is backed up by sufficient resources (Fullan, 2001). Those lecturers who teach interactively can share their teaching with others so that others may follow them as a role model, but this might face another challenge. In educational institutes existing professional jealousy might prevent the adaptation of the practice of others (Lee, 2009). Moreover, there can be other constraints too, as described below.

Time available to spend on interaction may also affect the proposed changes. At FAS, lecturers' main concern around practising interactive lectures was the lack of time to cover the syllabi if they involve the students in interaction. Of the two lecturers who were interested in conducting lectures interactively, BL2 considered that a lecturer could spend one third of lecture time in interacting with students, that is around 20 minutes, while ML2 who conducted interactive lectures did not consider a time limit for interaction. BL2's concern was that they would not be able to complete the syllabi if they are to spend more time in interaction. But at the same time she realised that when the subject matter is discussed interactively, students understand the content well. In this way she prioritises interaction beyond time constraints.

In this regard, lecturers can be persuaded that interactive/dialogic teaching is not necessary throughout the lesson or in each lecture. It could be another challenging task to identify which lectures and which sections need interactive/dialogic delivery. Because it is argued that not every part of the lesson needs to be dialogic but some can be monologic too. In connection to this, I present the views of different researchers.

Mortimer (1998) explains the two kinds of discourse in a spoken text ‘internally persuasive’ and ‘authoritative discourse’ which are similar concepts to dialogic and authoritative discourse, and were originally proposed by Bakhtin (1986). Mortimer explains:

The alternation between 'internally persuasive' and 'authoritative' discourses seems to be part of the rhetorical design of the classroom talk. While the 'internally persuasive' discourse allows alternative explanations and contradictory versions to be considered through argumentation and justifications, the 'authoritative' discourse stresses the shared knowledge already constructed. (p. 79)

Scott (1998) also expresses the similar view that learning in the classroom can be achieved through some kind of balance between presenting information and allowing exploration. That means there can be a balance between authoritative (non-dialogic) and dialogic discourse. The former presents information, while the latter allows for exploration. This balance he explains as the ‘rhythm of discourse’ (p. 64). Mercer and Dawes (2008) explain that if students are involved in dialogic discussion it should be followed by authoritative intervention of the teacher or conversely if scientific views are presented in an authoritative way, students should be given time to explore the ideas dialogically.

Further, Wells and Arouz (2006) reiterate the point by stating ‘it is not necessary for all lessons to be conducted in a dialogic mode for the class to be committed to a

“dialogic stance” toward the content of the curriculum’ (p. 418). Their thinking is though the dialogic mode is beneficial for students’ learning, it is not always possible for the teacher to incorporate dialogic teaching. In addition, as mentioned above the monologic stance of the teacher also adds effectiveness to the teaching. This review indicates that it may not be necessary to conduct the entire duration of a lecture interactively and some sections can be monologic too.

This decision as to which part need be dialogic or authoritative (monologic) can be made through experience and guidance. Moreover, students’ cooperation and their ability to interact in the classroom are necessary. The proposed pre-academic programme could be a measure to make this possible. Therefore, careful coordination among different recommendations made in this chapter is necessary for the successful implementation of this teaching approach. The one advantage found at FAS is the smaller class size and it could be conducive to developing lecturer-student interaction in the classroom.

7.5.4 Implications for future research

This study has brought up several other important questions that can be investigated in the future. I have described three important areas to be investigated in the future both within Sri Lanka and further afield from a study skill dimension, government policy initiative and teacher development and teacher preparation perspectives.

Firstly, the benefit of lecturer-student interaction in content classes can be investigated from a study skill dimension. It is argued in this thesis that in the I – R – F sequence the handling of ‘F’ move to provide feedback instead of evaluation can generate longer meaningful interactional exchanges to help students’ both language and content development (Nassaji and Wells, 2000). That is, the lecture delivery can

be oriented towards dialogic teaching. Based on this argument at FAS an intervention can be attempted by changing the lecture delivery to interactive/dialogic and assess what impact the changed delivery has on students' content and language development. The intervention study could be leaned towards a qualitative approach to assess in detail how interaction develops students' content knowledge and language proficiency, having more emphasis on observation and interview. In addition, the link between students' language proficiency and lecture comprehension as well as their language proficiency and the ability to participate in classroom discussions could also be investigated.

Secondly, a focus on how dialogic lecturer-student interaction can contribute to the government's policy initiatives would be useful. I mentioned in the introduction chapter under the rationale that there is a need to produce graduates who are competent to teach the content subjects in English to carry forward the English medium instruction at secondary level. Therefore, it could be beneficial to investigate the link between dialogic teaching and students' language proficiency and content knowledge. Another related issue in this connection is the lecturers' language proficiency and their ability to conduct lectures interactively. Even though lecturers' language proficiency was of a concern in the studies in the European countries, no studies so far have focused on investigating the relationship between these two variables in Sri Lanka or within the South Asian region.

Thirdly, the analytical framework developed in this study can be applied to the lecture discourse to investigate the extent to which dialogic teaching is practised in other larger universities in Sri Lanka as well as further afield. As mentioned earlier, this study is the first to unearth the dialogic teaching in an L2 context at tertiary level. In addition, the analytical framework can be used to categorise individual lecturers'

lecture delivery in terms of dialogic interaction. That is, the lecture delivery can be categorised from student centred (highly/mostly dialogic lecture delivery) to teacher centred (highly/mostly monologic lecture delivery). This categorisation can be used as a basis for teacher preparation which helps lecturers become equipped with the skills to move to a highly/mostly dialogic lecture delivery. Walsh (2011) argues for the importance of analysing classroom talk and more importantly teachers to have access to their own classroom talk analysed so that it may lead to better practice.

7.6 Chapter summary

In this chapter, I have tried to discuss the important findings of the study with relevance to Sri Lankan as well as Asian contexts. In order to do this I arranged this discussion chapter into four discussion questions. In this study it was revealed that like other Asian students who learn in a second language, students at FAS also had problems in understanding lectures as well as difficulties in participating in classroom discussion. Some of the reasons for the problem were similar to other contexts. The influence of senior students through ragging regarding classroom participation was found to be more pronounced at FAS and needs further study in other Sri Lankan as well as Asian contexts where the ragging is practised. The lecture delivery method, especially the kind of questions lecturers used and the type of interaction they developed at FAS also seemed to affect students' classroom participation.

As a remedial measure for the present situation at FAS dialogic teaching was considered to solve mainly students' lecture comprehension problems and poor participation in lectures. Though dialogic teaching is in its infancy in secondary level and is yet to secure a place in tertiary level, the reports from the secondary level and other similar approaches adopted in the tertiary level European contexts bring

somewhat convincing results. At FAS many lectures were authoritative/monologic, but a few lectures that were conducted interactively confirm that there is the potential for further development. Therefore, it could be inferred that more research in practising dialogic teaching could lead to more insight into its merits and demerits in contexts where students struggle to learn in a second language mainly for students who undertook their previous studies in their mother tongue.

CHAPTER 8 – CONCLUSION

8.1 Introduction

In this chapter, I am going to summarise the key findings obtained from the present study pertaining to the two research problems that I started with. They are students' lecture comprehension difficulties and limited oral language proficiency. In addition to this the limitations and significance of the study are also described.

8.2 Summary of the key findings

This study was based on the following four main/sub research questions and I summarise the findings based on those four research questions and then summarise my recommendations relating to the final research question.

1. *In ESL undergraduate Science lectures what are the NNS students' and NNS lecturers' perceptions regarding students' lecture comprehension abilities and the factors that influence students' lecture comprehension?*

The results of the investigation based on the students' and the lecturers' self reports revealed that students have lecture comprehension problems, and a number of factors seemed to affect this. Students and lecturers mentioned that students' limited English language proficiency may have an impact on their lecture comprehension abilities. Within language related problems they identified vocabulary and listening ability. For students the lecturers' lecture delivery style was of greater importance than other factors, while they did not consider their own language proficiency as a major reason compared to lecture delivery style. This attitude arises due to the simplified lecture delivery style of some lecturers which includes the use of the mother tongue, dictation of lecture notes, etc.

2. How do the students attempt to overcome their lecture comprehension problems?

The students reported that they solved their lecture comprehension problems, mainly by discussion with their classmates. They rarely discussed their comprehension problems with lecturers; rather they asked their classmates, or in case of persistent problems approached the tutors.

3. In ESL undergraduate Science lectures what are the NNS students' and NNS lecturers' perceptions regarding lecturer-student interaction and the factors that influence lecturer-student interaction?

The majority of the students (more than 90%) admitted that they neither answered questions nor asked questions in the classroom. This was also confirmed by the lecturers.

Even though students' language proficiency, shyness, and fear of speaking in public were also important in influencing lecturer-student interaction, more importantly, in this study it was revealed that the ragging that took place at FAS had a considerable impact on students' passive behaviour in the classroom so that they rarely asked or answered questions. In addition to this, it was also found that students feared that the lecturers from a particular department would penalise the students if they asked questions or even answered questions. Students assumed that lecturers may consider asking questions as challenging to the authority of the lecturers, while answering questions might be seen as 'showing off' students' talents to lecturers. Students also believed that some of their seniors were punished by those lecturers for either asking or answering questions.

4. To what extent does lecturer-student interaction occur in FAS lectures?

With regard to the lecture discourse, it was found that most of the lectures were monologic. According to the lecture discourse type ten out of twelve lectures were

identified as highly or mostly monologic, while the remaining two were mixed lectures, which consist of both monologic and interactive episodes within the lecture delivery. If we consider the lecture delivery approaches, we can identify that most of the lectures have the content transfer function over concept development. In the whole lecture discourse there were only 6 CDQs against 28 KTQs, these CDQs were used to initiate the same number of relevant CDEs, which is supposed to have the concept development function. Researchers (e.g. Trigwell et al., 1999) claim that the concept development approach, which is student centred, favours learning in the classroom. Moreover, when interactions occur in lectures, mainly between the teacher and the students, students are given opportunities to practice their language, but in this study such opportunities for students were highly limited.

Students however reported that lectures that contained interactional episodes were easy to comprehend, and interesting. In addition, they reported that such lectures help them develop their language and interpersonal skills. The students said that they felt confident to speak in English in or out of the classroom, when they were exposed to interaction in their lectures.

Recommendations

Despite the fact that there can be recommendations in different directions to overcome the present problems faced by the FAS students in the ESL Science lectures, I limit the recommendation to changing the lecture delivery style only. That is, to change the lecture delivery style to interactive/dialogic in order to overcome the students' difficulties in comprehending lectures and in improving their limited oral skills. The main reason for sticking to this particular recommendation is that previous studies have established that lecturer-student (or teacher-learner) interaction is able to

make an environment conducive for content and language learning. Following this tradition, this study has focused on the aspects of lecturer-student interaction and has investigated the feasibility of practising it at FAS. Therefore, making recommendations within the investigated area is more appropriate than making recommendations in any other areas (e.g. introduce more compulsory English courses, develop counselling and guidance service, etc.) without investigating each of them in detail.

I discussed the implications of changing the lecture delivery in detail in the discussion chapter including the challenges one needs to face when one intends to implement change. It was explained that when the lecturers practise the interactive/dialogic kind of lecture delivery it can benefit the FAS students. In order to make the lecture delivery as interactive/dialogic, lecturers need training, including encouraging a positive attitude towards this style of lecture delivery, though it could be a challenge, as I discussed in chapter 7. The changed lecture delivery can provide the students and the lecturers with the opportunities to interact with each other and such interaction could help the students overcome their lecture comprehension problems and at the same time could also help with their language development. Nevertheless, even though I do not discuss other recommendations, changing the lecture delivery alone may not help to overcome the present problems of FAS students. It should preferably be accompanied with other measures, for example, introducing more compulsory English courses (English for academic purpose), eradicating ragging, and reducing the students' fear of lecturers.

8.3 Limitations of the study

Generalisability

This study focuses on a single faculty of a university in Sri Lanka and therefore, the findings may not have wider implications or be generalisable to other contexts (although I argue under section 8.4 below that it is in fact likely that the findings do have implications beyond FAS). Moreover, the faculty is small in terms of student and lecturer numbers and is also located in a region, which is economically and politically in a disadvantaged position. Other universities in the metropolitan areas have larger student populations and also their lecturing staff are different from FAS. At FAS lecturers are younger, and also some of them are not proficient in English, which is the medium of instruction at FAS. For these reasons the outcome of the study may not be suitable to other universities in the metropolitan areas.

Despite the above facts, within FAS a broad picture has been obtained with regard to the lecturing situation. That is, nearly half of the FAS lecturers have been observed including the third and second year students for both the pilot and main studies respectively. Therefore, the findings of the study can be applicable to other faculties of this university which run courses through EMI.

Furthermore, though the recommendations of the study are more suitable for FAS, they could also be extended to other similar regional universities that have small class sizes. There are seven other universities in rural areas with small numbers of students, as I explained in the discussion chapter. Nevertheless, the recommendations, mainly the change in the lecture delivery approach, might not be applicable to universities that have larger class sizes (e.g. more than 100).

Self-report data

A part of this study was based on perception data obtained from students and lecturers through questionnaires. However it may not be possible to obtain an accurate picture of the current situation through self-reports and the reflection of the students and lecturers (Denscombe, 2003), as the self-reported responses may be distorted.

Exploratory nature of study

In addition, as this study was exploratory in nature, there was no attempt to investigate any relationship between lecturer-student interaction, and lecture comprehension, language proficiency or academic performance. Moreover, even though this study argues that lecturer-student interaction (dialogic) can favour content and language development, the direction of such a relationship is yet to be proven. That is, it is yet to be analysed empirically whether language proficiency is the cause or the effect of lecturer-student interaction at tertiary level, despite the assurance given by the previous studies at primary level (e.g. Haneda, 2005) that interaction assists content and language development.

Status of the researcher

Being a member of the academic staff and also working as a researcher has some limitations on this study. My own position as a lecturer influenced students' and lecturers' interviews. Sometimes, it seemed that I took more authority over the students to get their opinions, while the relationship was friendlier with lecturers. Even though the analysis of the transcripts of the pre-tested questionnaires helped me to understand my slipping from the role of a researcher, sometimes my position as a lecturer took over the role of the researcher, as it was found in the transcript that I tried to present some of their problems on their behalf.

Another limitation of this study is that my presence in the classroom was likely to change the classroom behaviours of students' as well as the lecturers'. Some students may have avoided opportunities to interact for the fear of being observed. In addition, some lecturers may have initiated some interactional exchanges for the purposes of observation. These effects were somewhat minimised by means of regular observation of lecture classes. These kinds of behaviours are known as the Hawthorne effect and are considered to be short lived (Berg, 2001; Hammersley, 2005).

8.4 The significance of the study

There are only a few studies that have focused on Asian students' lecture comprehension problems. Of the few, Flowerdew and colleagues (1992, 1996b, 2000) have conducted three research studies investigating students' perceptions, problems and strategies among Hong Kong Chinese students. However, the current study differs from theirs in two significant ways. One is that students in Hong Kong conducted their secondary studies in both English and Cantonese, whereas students in this study were educated only in their mother tongue (Tamil). Another key difference is their studies were limited to finding the perception only, whereas the present study investigates the actual lecture discourse and delivery style and considers lecturer-student interaction as an alternative to overcome the students' comprehension problems and develop their limited oral skills in tertiary level content classes. In Sri Lanka, only one study has investigated the lecture comprehension problems of tertiary students, and was carried out long ago (Sally, 1985).

Outside the Asian context, to my knowledge only Pedrosa de Jesus and da Silva Lopes (2009, 2011) have investigated dialogic interaction in tertiary-level subject lectures, but those studies were carried out in an L1 context. Hence, in the absence of

studies on lecturer-student interaction or lecture discourse in Sri Lanka at secondary or tertiary level, and also the scarcity of studies in the Asian region in content classes, the present study has emerged as the first known study that has been undertaken in an L2 context in tertiary level science lectures to investigate lecturer-student interaction with an emphasis on dialogic interaction.

In this study, I have investigated to what extent dialogic interaction occurs in the FAS lectures and the problems related with practising interaction, with a detailed analysis of the lecture discourse of 12 transcribed lectures. Even though this study did not measure how the interaction could develop language and content, this study has been important in identifying the existing situation at FAS, mainly before implementing any intervention and measuring its impact. Hence, this study has revealed the following interesting findings at FAS, particularly with regard to interaction:

- Students' ability to answer questions was low, and the frequency with which they asked questions was also very low.
- Most of the lectures delivered were monologic, while two lectures were mixed lectures which had interactional exchanges to a certain extent.
- The questions asked by the lecturers were mostly knowledge testing questions (KTQs).
- The interactional episodes belonged to the knowledge testing type (KTEs) and they performed mainly the content transfer function.
- The pattern of interactional episodes was traditional I-R-F pattern and a slight variant of the I-R-F due to the occurrence of CR (confirmation request) moves.

Even though the findings of the study may be applicable to FAS only (as admitted in 8.3 above), with regard to the generalisability to other contexts the study's findings may have wider implications than at first thought.

The lecturing situation in other universities in Sri Lanka (particularly in rural areas) is likely to be similar to that of FAS, with a low level of lecturer-student interaction. Therefore, the findings of the study can be generalisable to a certain extent to other rural universities in Sri Lanka. Nevertheless, in the absence of any previous studies in Sri Lanka on the lecturing situation, the authenticity of this claim can be challenged and therefore, it should be suggested that broader studies are needed to include a diversity of universities in terms of class-size, first language, etc. in the future. With this precaution in mind, the findings of the study can be extended to other universities in Asia as well as Europe where English is used as a second or a foreign language, as I argue next. I mentioned earlier in the discussion chapter that lectures are delivered as teacher centred in Asian countries (Kumar, 2003) as well as European countries (van Dijk et al, 2001; Pedrosa de Jesus and da Silva Lopes, 2009). To support this argument further I am going to analyse a few lecture corpus studies in the next section.

Contribution of the study outside the Asian context

The Business Studies Lecture Corpus (BSLC) compiled at the Faculty of Economics of the University of Florence, Italy mostly contains monologic lectures. This corpus consists of 12 lectures, of them half were collected from the guest lecture series/classes (European Business Module) conducted by both NS and NNS of English lecturers to NNS students (Crawford Camiciottoli, 2008), while the other half was collected from different sources of NS lecturer and NS student contexts. Of the 12 lecture corpus, 10 were monologic, and of those 10, five were collected from small class-sizes (less than 40 students), as in the present study, while the other five monologic lectures were obtained from large class sizes. This indicates that the

lecturing situation can be monologic in other contexts too in both L1 and L2 situations, irrespective of class size.

Furthermore, the BASE corpus, a British corpus of 160 academic lectures was analysed by Nesi (2001) using 30 samples for her own study of lecture density from three disciplines: Science, Social Science and Humanities. Of those 30, in 19 lectures there was no student participation, in particular from the 10 science lectures nine lectures did not have any student participation. Of those science lectures five lectures had a small class size (<20) too. Nevertheless, a detailed categorisation of the BASE corpus of 160 lectures in terms of interactivity is not available except via this measure for student participation.

Further evidence of low levels of interactivity in tertiary lectures comes from the MICASE corpus. Analysis of the MICASE corpus for lectures alone indicates that out of 32 small (less than 40 students) and 30 large lectures (more than 40 students), 60% of lectures overall and 77% of large lectures were highly or mostly monologic. Out of these 62 lectures, 50 were at undergraduate level, although only 14 were at the same junior undergraduate level as in the present study (1st and 2nd year students). It is also notable that at junior undergraduate level, 85% of the MICASE lectures were mostly or highly monologic, perhaps partly due to the larger class size at that level.

Despite the differences for speakers, stream of study, students, etc.⁴⁰ this analysis of the MICASE corpus reveals that lectures are usually delivered as monologic (non-interactive) in western contexts too. Therefore, it can be claimed that interactivity is commonly low in different contexts irrespective of whether the lecture is delivered in

⁴⁰ Even though it was desirable to match the speaker attributes and speech events to the present study context (i.e. non-native speaker lecturers, small lectures, biology and mathematics streams and undergraduate students), there were no matches for this combination of categories in the MICASE corpus.

the L1 or L2. Hence, it can be considered that the findings of the present study can be generalisable beyond FAS too.

The bottom line, however, is that, the studies that have investigated the lecture corpus for interactivity, like that of the MICASE corpus, are few in number even in the Western countries. For example, the ELC (Engineering Lecture Corpus) compiled by Coventry University, UK covers Engineering lectures from three universities: Coventry University in the UK, Universiti Teknologi Malaysia (UTM) in Malaysia, and Auckland University of Technology (AUT) in New Zealand. But the corpus developers have not analysed the corpus in terms of interactivity. It is the same for the BASE corpus too. In addition, more academic spoken corpus based studies can be envisaged in the future as the researchers in different countries have recently focused on this. For example, as I mentioned in chapter 5, CUCASE, NUCASE and EDASE corpora are being compiled and there are not yet any published results. Moreover, none of these corpora have considered dialogic interaction in their study of the lecture corpus, even Pedrosa de Jesus and da Silva Lopes, the only known researchers to investigate dialogic interaction at tertiary level, did not categorise their lecture corpus for dialogic interaction. Therefore to my knowledge the present study is the only known study to have categorised the lecture corpus in terms of dialogic interaction, albeit on a small scale.

Therefore, the findings of the study can have wider implications than initially thought. In the introduction chapter I predicted that this study could contribute to both practitioner perspectives as well as to new knowledge domain. From a practitioner perspective the new analytical framework developed in this study can be used by anyone who would like to evaluate his or her own lecture delivery or by any teacher developers who would like to investigate other practitioners' classes through

observation. The analytical framework developed in this study refines and extends the MICASE corpus interactivity rating in a contextually-focused way. In particular, it overcomes the two inherent problems found in the MICASE system of analysis for interactivity. They are the use of arbitrary values for classifying lectures and lack of consideration for dialogic value. This study considers dialogic interaction to be at the heart of its analytical tool has developed an analytical framework that uses exact duration of interactional episodes along with the consideration of dialogic episodes. As a result, it can be considered as more suitable to assess any lecture delivery in an EMI context with NNS students.

From the perspective of new knowledge this study has contributed to the growing number of interaction studies from the tertiary level, specifically in relation to developing dialogic interaction. Through this study a clear precise message is conveyed to the reader that interaction should be dialogic to be of benefit for content and language development. In this study it is considered that the use of CDQs (Concept Development Questions) and CDEs (Concept Development Episodes) can enhance dialogic interaction.

Another innovative finding of the study is the influence of senior students through ragging. In this study, it was found that senior students influenced the behaviour or attitude of the junior students through ragging. This situation seemed to have some adverse effect on students' learning including classroom interaction and prevented students from getting assistance from lecturers for their comprehension problems. The findings discussed in this study with regard to ragging may have more benefits to the universities not only in Sri Lanka but also in Southeast Asia, which faces similar cultural and behavioural problems.

To sum up, this study, which was undertaken to investigate the problems of English medium students in the science undergraduate lectures, has revealed the existing situation and related issues with regard to lecturer-student interaction at FAS, with some of the findings being innovative and generalisable beyond FAS. From the findings the future direction can be mapped out to improve the existing situation for the benefit of the students.

8.5 Conclusion

This thesis has attempted to investigate the potential of lecturer-student interaction in solving two contextualised problems of the students who followed ESL science lectures at FAS. The problems that prompted the construction of this study were students' lecture comprehension problems and limited oral skills. The present study using an especially designed analytical framework along with different research methods, accommodated under a mixed methods research design, has unearthed a rich data source in order for us to understand the existing lecturing situation at FAS and the connected issues in developing lecturer-student interaction. It was found that at FAS most of the lectures were delivered as monologic with little interaction between lecturers and students. The nature of the majority of the lecture delivery itself did not provide opportunities for students to interact in the classroom, while the few lectures which developed interactional exchanges were perceived by students as useful for understanding the content easily and gave them confidence to use the language. Nevertheless, dialogic interaction, which is believed to benefit content and language learning was totally lacking, despite the presence of a few Concept Development Questions (CDQs), which help in developing dialogic interaction. In addition, it was revealed that the lecturers were unaware of the importance of such dialogic

interaction in classes or of the knowledge required to develop them, though there are marked differences between interaction and dialogic interaction.

The analytical framework developed in this study could be used in future research studies and more importantly in teacher preparation activities to identify favourable lecture delivery, as mentioned earlier. The framework as a basis can be used to indicate the gap between the present level of interactivity in lectures and the desired level and can be of considerable value to the teaching and learning in higher education. Therefore, this study being the first to unearth the practising of dialogic interaction at tertiary level undergraduate classes, using the specially designed analytical framework, can make a concrete contribution to teaching and learning in higher education, mainly to the concept of developing content and language development through dialogic lecture delivery at tertiary level L2 content classes.

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List of Appendices

Appendix 1: Gantt chart for the data collection

week	December 2008 – March 2009	1 20/4/2009	2 27/4/2009	3 04/5/2009	4 11/5/2009	5 18/5/2009	6 25/5/2009	7 01/6/2009	8 08/6/2009	9 15/6/2009	10 22/6/2009	11 29/6/2009	12 06/7/2009	13 13/7/2009	14 20/7/2009	15 27/7/2009	16 03/8/2009
Activity																	
Ethical approval / Faculty approval for the study																	
Pre-testing of students' and lecturer's questionnaires + Recording of a lecture for pre-testing																	
Pre-testing of student and lecturer interviews																	
Lecture recordings / observation / collection of lecture artefacts		As shown below								As shown below							
BL1										Mid semester vacation							
BL2																	
ML1																	
ML2																	
Lecturers' questionnaire surveys							BL1 & ML2							BL2 & ML1			
Students' questionnaire surveys																	
Lecturers' semi structured interview								ML1					BL1		ML2		BL2
Student group interview											Bio 1		Math 1	Math 2			Bio 2

Appendix 2: Information sheet for participants (Lecturers)

Project title: Investigating science lecture comprehension by ESL learners

Aim of research project

To find what pattern of lecture delivery exists in L2 undergraduate science classrooms in terms of students' participation and to investigate students' lecture comprehension.

What you will need to do

- Provide details of your qualifications, training programs attended, experience, subject taught, etc.
- Allow me to sit in on three or four of your lecture classes and also audio record your lectures.
- Complete a questionnaire
- Participate in a semi structured interview (to be recorded)
- Have a discussion on certain selected components of the lectures recorded as part of the interview.

Ethical details

- You can withdraw at any time without any negative consequences.
- Information gained during the study may be published, but you will not be identified and your personal results will remain confidential.
- The data will be stored with me, and at any time you can request to see your results.
- You may contact me if you require further information about the research, and you may contact the Research Ethics Coordinator of the School of Education, University of Nottingham, if you wish to make a complaint relating to your involvement in the research.

Signed (Researcher)

Print name A. M. Mohamed Navaz **Date:** 25 March 2009

Contact details

Researcher: ammnavaaz@hotmail.com

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School of Education Research Ethics Coordinator: roger.murphy@nottingham.ac.uk

Appendix 3: Student questionnaire – main study

STUDENTS' QUESTIONNAIRE –MAIN STUDY

Section A: BACKGROUND DETAILS

Reg. No:.....

Sex: (Male/

Female)

Course of study:.....

Subject combination:

.....

School attended for your GCE O/L

.....

Please give the details of previous English results obtained from government (state) examinations

Year	Name of examination	English Results
	GCE O/L – attempt 1	
	GCE O/L – attempt 2	
	GCE A/L – attempt 1	

Please give the details of English results obtained in the university

Year	Name of examination	English Results
1	Semester 1	
1	Semester 2	

How do you assess your present English standard? (Please '√' the most appropriate option)

5. Very good	
4. Good	
3. Average	
2. Poor	
1. Very poor	

Section B

1. In general, how would you describe your overall level of lecture comprehension? **(Please ‘√’ the most appropriate option)**

a. I understand everything. I am able to follow the lectures from beginning to end with no listening problems at all. (Please go to question ‘7’)	
b. I understand almost everything. A few items of vocabulary confuse me, but I can usually guess their meaning.	
c. I am able to understand at least half of the main points and some of the supporting details of a lecture in English. There are usually many new words and expressions I do not understand.	
d. I often get confused with a lecture in English. I am unable to identify most of the main points and supporting details. I usually only understand about 30% of the lecture.	
e. I do not understand a lecture given in English	

2. How important are the following factors in influencing your lecture comprehension? **(Please ‘√’ the appropriate box to rate how important you think each factor is)**

Item	Very important	Important	Neither important nor unimportant	Not very important	Not important at all
a. Vocabulary knowledge					
b. Listening proficiency					
c. Speed at which the lecturer talks					
d. Knowledge of the subject matter					
e. Ability to participate in classroom discussion					
f. Any other factor (s) [Please give details]					

3. Do you try to solve the lecture comprehension problems that arise in the class? **(Please ‘√’ the appropriate option)**

a. Yes (Please go to question ‘4’)	
b. No (Please go to question ‘6’)	

4. How do you try to solve comprehension problems that arise in the class?
(You can select more than one option)

a. Discuss with the lecturer in the class at that time	
b. Discuss with the lecturer personally when he comes closer during the lecture	
c. Discuss personally with the lecturer at the end of the class in the lecture hall	
d. Discuss with the lecturer outside the lecture hall immediately after the class	
e. Discuss with the lecturer in his office (room)	
f. Discuss with my classmates	
g. Any other means [Please give details]	

5. Of the above what is your most common practice to solve comprehension problems? (Please write only one)

.....

6. How helpful do you think different types of support from subject lecturers are/would be in enhancing your level of lecture comprehension? (Please '√' the appropriate box to rate how helpful you think each type of support is/would be)

Item	Very important	Important	Neither important nor unimportant	Not very important	Not important at all
a. Using visual aids (e.g. OHP, White Board, PowerPoint slides, etc.)					
b. Providing a glossary (English–Tamil) for new terms					
c. Providing a glossary in simplified English for new terms					
d. Reducing the speed of speech when lecturing					
e. Encouraging students to ask questions					
f. Encouraging students to answer questions					
g. Using mother tongue when students face comprehension problems					
h. Repeating the key points when lecturing					
i. Providing written outlines or notes					
j. Any other support (s) [Please give details]					

7. Do you always answer questions asked by your lecturers in the lecture class?
(Please '√' the appropriate option)

a. Yes (Please go to question '9')	
b. No (Please go to question '8')	

8. If you do not answer questions, what is/are the reason/s? (Please '√' the appropriate option(s). You can select more than one option)

g. Shyness to talk in the class	
h. Fear of giving a wrong answer	
i. Language problem	
j. Lecturer gives the answer before I attempt to answer	
k. Think that other students would answer	
l. Not knowing the answer	
g. Any other reason(s) [Please give details]	

9. What language do you prefer questions to be asked in? (Please '√' the appropriate option)

a. English only	
b. English with mother tongue explanation	
c. Mother tongue only	

10. Do you personally ask questions in the class when you have comprehension problems? (Please '√' the appropriate option)

a. Yes (Please go to question '11')	
b. No (Please go to question '14')	

11. Do you have more interaction (either ask question or answer questions) in any particular subject compared to other subjects in this semester?

a. Yes (Please go to question '12' & '13')	
b. No (Please go to question '14')	

12. If yes, please write the name of the subject.

.....

13. If yes, please briefly mention the reasons for having more interaction in that particular subject?

.....

14. What is/are the reason/s for not asking any questions in the class when you have a problem in understanding lectures? (Please '√' the appropriate option(s). You can select more than one option)

c. Language problem	
d. Culture (attitude of not asking questions of the lecturers in the class)	
c. Fear of speaking publicly	
d. Thinking that the questions would be too easy for other students	
e. Lack of opportunities given to ask questions	
f. Thinking that I could solve the comprehension problems with my colleagues	
g. Thinking that I would solve the comprehension problem with the lecturer later	
h. Any other reason(s) [Please give details]	

15. To what extent do you agree with the following statements? (Please '√' the appropriate box to indicate your opinion on each statement.)

Item	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
a. If there was more interaction in English (asking questions of the lecturers or answering questions) in lectures, my comprehension of lectures would improve.					
b. If lecturers asked questions in the mother tongue, I would answer more often.					
c. If I were allowed to use the mother tongue, I would ask more questions.					
d. Generally I use the mother tongue outside the lecture classroom to talk to lecturers.					
e. I always use mother tongue when the lecturers ask me to discuss with my colleagues					
f. My participation in lecture discussion is greater this year compared to the first year.					

16. Do you believe that the level of lecturer-student interaction is satisfactory in your second year classes? (Please '√' the appropriate option)

a. Yes (Thank you: you have finished!)	
b. No (Please go to questions '17' & '18')	

17. What reason/s do you consider is/are behind poor lecturer-student interaction in the classroom? (You can select more than one option)

a. The students' negative thinking towards asking questions in the class	
b. The students' negative thinking towards answering questions in the class	
c. The students' poor language ability	
d. Fear of speaking publicly	
e. Lack of opportunities available for discussions in the class	
f. Any other reason(s) [Please give details]	

18. What do you think should be done to increase students' involvement in classroom interactions (classroom participation)? (Please write your suggestions in order of importance in the space given below, i.e. no. 1 indicates the most important suggestion.)

1.
2.
3.

THANK YOU

Appendix 4: Lecturer questionnaire – main study

Section A– BACKGROUND DETAILS

Educational Qualifications (PhD, MSc, MPhil, BSc, etc.) Please give the degrees and the universities.	
Experience in teaching English medium classes at university level (no. of years).	
Training programmes attended in general for teaching (i.e staff development programme). Please mention when and where.	
Training programmes attended for teaching in English medium.	
Subject/s taught for second year (this semester).	

Section B

Note: Please keep the current second year students in mind when you answer these questions.

1. What percentage of the second year bioscience/mathematics students, in your opinion, have lecture comprehension problems? (Please '✓' the most suitable option)

a. >75 %	b. 50–75%	c. around 50 %	d. 25 –50 %	e. < 25 %	f. Don't know

2. In general, how would you describe their overall level of lecture comprehension? (Please '✓' the most suitable option)

a. They understand everything. They are able to follow the lectures from beginning to end with no listening problems at all. (Please go to question '8')	
b. They understand almost everything. A few items of vocabulary confuse them, but they can usually guess their meaning.	
c. They are able to understand at least half of the main points and some of the supporting details of a lecture in English. There are usually many new words and expressions they do not understand.	
d. They often get confused with a lecture in English. They are unable to identify most of the main points and supporting details. They usually only understand about 30% of the lecture.	
e. They do not understand a lecture given in English	

3. Do your students try to solve the lecture comprehension problems that arise? (Please '✓' the suitable option)

a. Yes (Please go to question '4')	
b. No (Please go to question '6')	

4. How do the students try to solve comprehension problems that arise in the class? (Please '✓' the appropriate option(s). You can select more than one option)

a. Discuss with the lecturer in the class at that time (Please go to question '5')	
b. Discuss with the lecturer personally when he comes closer during the lecture	
c. Discuss personally with the lecturer at the end of the class in the lecture hall	
d. Discuss with the lecturer outside the lecture hall immediately after the class	
e. Discuss with the lecturer in the lecturer's office (room)	
f. Discuss with their classmates	
g. I don't know	
h. Any other means [Please give details]	

5. What percentage of your second year students try to solve their comprehension problems in the class at that time? (Please '✓' the most suitable option)

a. >75 %	b. 50–75%	c. around 50 %	d. 25 –50 %	e. < 25 %

6. What reason/s do you consider is/are behind the lecture comprehension problems of your students in general? **(Please write the reasons in the order of importance in the space given below. i.e. No 1 indicates the most important reason)**

1.....

2.....

3.....

7. How important do you think it is for you to provide different types of support to enhance your students' level of lecture comprehension? **(Please '√' the appropriate box to rate how important you think each type of support is)**

Item	Very important	Important	Neither important nor unimportant	Not very important	Not important at all
a. Using visual aids (e.g. OHP, White Board, PowerPoint slides, etc.)					
b. Providing a glossary (English–Tamil) for new terms					
c. Providing a glossary in simplified English for new terms					
d. Reducing the speed of speech when lecturing					
e. Encouraging students to ask questions					
f. Encouraging students to answer questions					
g. Using mother tongue when students face comprehension problems					
h. Repeating the key points when lecturing					
i. Providing written outlines or notes					
j. Any other support (s) [Please give details]					

8. Do you ask questions to the whole class? **(Please '√' the suitable option)**

a. Yes (Please go to question '9')	
b. No (Please go to question '12')	

9. How do the students answer questions directed to the whole class? **(Please '√' the most suitable option)**

a. Many students answer readily (Please go to question '12')	
b. Only one or two answer readily	
c. Only one or two answer after repeated requests	
d. No one volunteers and I have to name a student to answer	
e. No one answers the question at all	

10. What do you think is the reason, if there is poor response? **(Please ‘√’ the appropriate option(s). You can select more than one option)**

m. Shyness to talk in the class	
n. Fear of giving a wrong answer	
o. Language problem	
p. Lack of interest in answering questions	
q. Not knowing the answer	
f. Any other reason(s) [Please give details]	

11. If the students do not answer, is there a change if you repeat the question in the mother tongue? **(Please ‘√’ the most suitable option)**

a. Students respond more	
b. There is no change even when I change the language	
c. I have not tried that	
d. I do not want to switch the language	

12. What percentage of the students ask questions in your second year class when they have a problem understanding lectures? **(Please ‘√’ the most suitable option)**

a. >75 %	b. 50–75%	c. around 50 %	d. 25 –50 %	e. < 25 %
(Please go to question ‘14’)				

13. Why don't students ask questions in class when they have a problem understanding lectures? **(Please ‘√’ the appropriate option(s). You can select more than one option)**

a. Language problem	
b. Culture (attitude of not asking questions of the lecturers in the class)	
c. Fear of speaking publicly	
d. Think that they could solve the problem later with their colleagues	
e. Think that they could solve the problem later with the lecturer	
f. Any other reason(s) [Please give details]	

14. To what extent do you agree with the following statements? **(Please ‘√’ the appropriate box to indicate your opinion on each statement.)**

Item	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
a. If there was more interaction in lectures, students' comprehension of the lectures would improve.					
b. If I asked questions in the mother tongue, students would answer more often.					
c. If students were allowed to use the mother tongue, they would ask more questions.					
d. Generally students use the mother tongue outside the lecture classroom to talk to lecturers.					

15. Do you believe that the level of lecturer-student interaction is satisfactory in your second year classes? **(Please ‘√’ the suitable option)**

a. Yes (Thank you: you have finished!)	
b. No (Please go to questions ‘16’ & ‘17’)	

16. What reason/s do you consider is/are behind poor lecturer-student interaction in the classroom? **(Please ‘√’ the appropriate option(s). You can select more than one option)**

a. The students’ negative thinking towards asking questions	
b. The students’ negative thinking towards answering questions in the class	
b. The students’ poor language ability	
c. Students’ fear of public speaking	
d. Lack of time to be spent on discussions (need to cover the syllabus)	
e. Any other reason(s) [Please give details]	

17. What do you think should be done to increase the students’ involvement in classroom interaction (classroom participation)? **(Please write your suggestions in the order of importance in the space given below, i.e. No. 1 indicates the most important suggestion.)**

1.
2.

Appendix 5: Classroom observation schedule

TQC – A, B, C
TQI – a, b, c,

M/F										

Notes

M1....n – Male student F1....n – Female student (The number is given according to the seating order and applicable only to a particular class)

Boxes – indicate the seating arrangement.

M1....n or F1....n in the box indicates that a male or female student was seated in that place

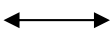
Shadow – indicates the passage between seats.

SQ – Student's question marked in the individual student's box.

TQC – Teacher's Question Common – it indicates the question raised to the whole class; marked in the teacher's box (TQC A, B, CZ, A1...).

TQI – Teacher Question Individual (directed to a particular student) – marked as (TQI, a, b, c,z...a1....).

SAI – Individual student's answer to respective teacher's common or individual question is marked in the student's cage as with relevant TQI a, b, c,z...a1.... OR TQC A, B, CZ, A1...

PD – Peer Discussion –  also indicated by double headed arrow to show who involved.

SAC – Students' answer in chorus is marked between the teacher's box and students' with relevant TQI a, b, c,z...a1.... OR TQC A, B, CZ, A1...

Appendix 6: Transcription conventions

Symbol	Explanation	Example
<L>	Lecturer	ML – Mathematics lecturer
ML1, ML2, BL1 and BL2	Refer to the four lecturers whose lectures were mainly observed.	
<M1...n>	Male student	M1 – refers to the male student who was given number one in a particular class as marked in the observation schedule.
<M>	Mathematics student or lecturer	MM1 – mathematics male student number 1
	Biology student or lecturer	BL1 – Biology lecturer number 1
<Fn>	Female student	MF1 – mathematics female student number 1
<Mn> or <Fn>	Unidentified male or female student	MMn – Unidentified mathematics male student
<S>	Student	
<SA>	Student's Answer	
TCQ	Teacher's Questions in Common, addressed to the whole class	
TQI	Teacher's Questions Individual, addressed to one student	
SAC	Students' Answer in Common	
R	Researcher	
L	Overlap	<p><M1> I try to say</p> <p style="margin-left: 150px;">└</p> <p style="margin-left: 100px;"><M2> We try to ask</p> <p>Here M2 overlaps M1</p>
//	Interruption – Shows where starts in the text	
[.....]	Text continues – In an extract it shows the continuation of the text	What is imaginary values↑? [.....]
‘_’	[hyphen] attached to the preceding word. Indicates incomplete utterances or repeated words.	<p>i) when I start– ok I will give another example. (incomplete previous utterance)</p> <p>ii) the– the (repetition)</p>
/	Back slash – Momentary pause between words when pronounced.	Deoxy / Ribo / Adenosine
[.]	Short pause which lasts less than two seconds.	
[..]	Long pause which lasts two to four seconds.	
↑	Rising intonation	Ok? ↑
↓	Falling intonation	right↓.

!	Exclamation mark	
[n]	A pause with duration in seconds, which lasts more than four seconds. This includes wait time for a question but does not include the lecturers' or students' silence. (see below).	[6] indicates that the speaker pauses for six seconds in between two consequent utterances.
[silence – n seconds – L]	Silence of the lecturer for n seconds. Includes the time the lecturer waits on tasks, working him/herself on tasks or doing some preparation in the class. Usually followed by extra linguistic information.	
[silence – n seconds – S]	Silence of the student for n seconds. Includes time taken to answer questions, but not the time working on tasks. Usually followed by extra linguistic information. See below.	
[[]]	Extra linguistic information, non-verbal features or transcriber's comment.	[[laughter]] [[inaudible]]
[text omitted – 10 seconds] [text omitted – 2 words]	Text omitted because the information is personal or not relevant to the study. The duration of the omitted talk is given if it is longer duration. Otherwise the number of words omitted is mentioned. Sometimes the explanation for the omission is given as extra linguistic information.	[text omitted – one word] [[name of the lecturer]] Here the name of the lecturer was omitted from the transcript.
[back channelling]	Texts within single square brackets indicate back channelling.	[BL1: Yes] lecturer's back channelling
/ /	Phonemic expressions of indistinguishable sounds.	/uh/ – /ah/ = questions
‘.’	Full stop (inserted whenever there is a falling intonation).	we will study this in detail later right↓.
‘?’	Question mark (inserted for rising intonation).	it is very difficult to define quality ok↑?
Mmm, yeah, right, etc.	Back channelling	
Er, ah, etc.	Hesitation marks	
<L1>	Talk in Tamil in a transcript which originates from a lecture/ interview held in English.	<L1 Can you answer my questions?>
<	Beginning of L1 or L2 talk	
>	End of L1 or L2 talk	
<L2>	Talk in English in a transcript that originates from an interview or discussion held in the mother tongue.	

Conventions based on those used in: Carter, R., McCarthy, M. (1997) *Exploring Spoken English*. Cambridge: Cambridge University Press.

Appendix 7: Continuation of episode from Applied Statistics – Lecture 1

12. MM5: that is about use
13. ML2: /uh/? that is only enough↑?
14. Mn: material is good
15. ML2: material is good.
16. M2: according to its all features.
17. ML2: according to all
18. MM2: └ features
19. ML2: └ features right now suppose say you are er– ok suppose you are going to– you are– you are– retail– you have a retail shop ok↑? now you are going to sell pens ok↑? what are the pens you are having? can I have this pen? what is this? Atlas then do you have anything? can I have that pen please? what is this?
20. MM1: Rotomac.
21. ML2: /uh/?
22. MM1: Rotomac.
23. ML2: Rotomac ok↓ ok now say retail shop so you are going to sell pens so what you will buy to sell? this one or this one? say you have some amount of money only you don't want to buy all the pens /imm/↑? what do you want to buy?
24. MM2: this one
25. ML2: Atlas why?
26. MM2: experience is good
27. ML2: experience of
28. MM2: good
29. ML2: for you↑? [[to MF10]]
30. MF10: [[indicates the pen]]
31. ML2: Rotomac ah? why? [...] why?
32. MF10: easy to write– see– now again the selection of a product is based on different needs again ok↑? now he says is good but he– she– for her it is easy to write right↑? now [...] therefore [...] it is very difficult to define quality ok↑? different people looks quality in different aspects right↑? but there are– there are few definitions for quality ok↑? I don't want you to remember these definition but just I have quoted two definitions here ok↑? [...] now someone looks in different way this quality for example right? [8] [[drawing on the board]] say it is a Fanta bottle ok↑? for example
33. ML2: how many millilitres you have?

51. ML2: low other way therefore so you should not forget this now definition the quality is inversely proportional to the variability right↓. and someone– and the definition because a lot of definition you can find in different xxxxxx [[mispronounced word]] quality improvement is the reduction of variability in process and products what is quality is reduction of variability right↑? variability in process and products now I want to take an example of that [9] example composition of quality of TV sets manufactures in USA and Japan ok↑? have you– have you seen a USA TV anyone↑? [...] in Sri Lanka↑? you don't because Japan actually er made a gift of our 'Rupawahini'^a and they act– they wanted to introduce their TV marketed right↑? ok now the composition of quality of TV sets manufactured in USA and in Japan [9] [[writing on the board]] ok when you produce a millions of TV– the company say we produce millions of TV ok↑? say one million TV for example one million and all the TVs they produce by the company are not going to be– not going to be sold in the market because there may be defects– one or two defects right↑? talk about the carpenter– take about the carpenter– ok↑? when he making chairs– a lot of chairs– thousand of chairs you see one of defect chairs like that TV also when you produce lots of TV they will have defects right ok then [...] so in average there will– say for example quality may be a TV you can see there– take a quality for example– say sound they are testing the sound of the TV Ok↑? sound of the TV whether they are very good in sound some of are not good some of are in average so most of the TV we produce is in average but we produce a limit here is called LCL lower / control / limit lower control limit that means if the noise quality is less than this lower quality we reject the TV we cannot sell it then [...] UCL this upper control that means very good beyond this what's that? [...] it is very very good but still we don't remove this now the problem with these Japan TV and USA TV is ok↑? [...] Japan market they produce this– this way– that means [...] their most of the TVs [...] are in the– you see– their most of the TVs are within the average [...] now USA their technique is– sometime Japan you see– they produce some worse as well and from very xxxxxx [[text omitted – mispronounced word]] best thing as well but USA [...] is like this [...] right↑? these things because– because it is more than our topic that is this is the Japan is becoming more and more famous because of their technique is different– this way therefore the cost is low theirs ok↑? they want– because they– the USA are more concerned about putting up all here and Japan thinks no the most of the thing we produce in the better quality that's enough right this is just for an example [...] we turn to third page [10] right↑? now I said for– for example Japan things the quality is like this ok↑? most of the things are within this and some are [...] not up to the quality so this is called– this is– we will study these things later now for this we have a cost what is the cost? [...] what is the cost? [...] now if– if a company xxxxxx [[text omitted – mispronounced word]] laptop– for example laptop– they are giving with the what? when you buy the laptop– you– mostly we care about what?
52. MM5: warranty
53. ML2: /uh/?
54. MM5: warranty
55. ML2: warranty what's a warranty? right so when we talk about the warranty– that means if we get some problem within say for example three years they have to replace it [...] now if you sell all the products then in future somewhere we have to replace this product this cost is called warranty cost ok↑? warranty– we will study this in detail later right↓. again just for a introduction [...] look at that– when a process [...] this one– for these I want to take example a simple example sugar say if you go to the shop to buy a sugar ok do you see the sugar and buy it or just you ask it one kilo of sugar↑?
56. MF10: just buy it
57. ML2: /uh/? just↑?

called warranty cost ok↑? warranty– we will study this in detail later right↓. again just for a introduction [...] look at that– when a process [...] this one– for these I want to take example a simple example sugar say if you go to the shop to buy a sugar ok do you see the sugar and buy it or just you ask it one kilo of sugar↑?

66. MF10: just buy it

67. ML2: /uh/? just↑?

68. MF10: buy

69. ML2: but now– because in the market you know most of the sugars are good in quality but earlier days– no we see for that– quality of the sugar so when you– when you talk about the quality of the sugar what do you see? [.....].