A COMPARATIVE ANALYSIS OF LECTURE REGISTER IN TURKISH UNIVERSITIES WITH TURKISH AND ENGLISH MEDIA OF INSTRUCTION FROM A FUNCTIONAL VIEWPOINT

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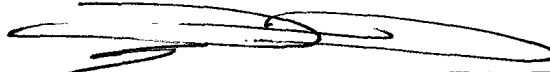
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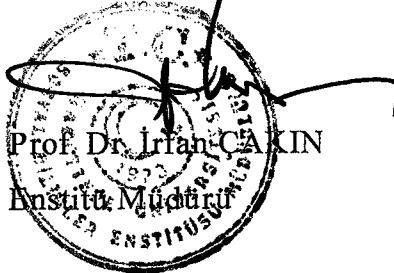
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ÖZET

DOYURAN, Zeynep. Eğitim Dili Olarak İngilizce ve Türkçe Kullanılan Üniversitelerde Derslerin Karşılaştırmalı Kesit Çözümlemesi: İşlevsel Yaklaşım, İngiliz Dilbilimi Anabilim Dalı DOKTORA TEZİ, Ankara, 2006.

Söylem çalışmaları hem yazılı hem de sözlü dili çeşitli yaklaşımlar kullanarak incelemektedir. Bütünce incelemesine dayanan kesit çözümlemesi bu yaklaşımlar arasında hem nitel hem de nicel inceleme teknikleri kullandığı için en çok tercih edilen yaklaşımlardan biridir. Bütünceye dayanan bu yaklaşım, bir dildeki kesit çeşitliliğini karşılaştırmalı olarak incelemeye olanak sağlar. Bu çalışmanın amacı İngilizce ve Türkçenin eğitim dili olarak kullanıldığı üniversitelerdeki, akademik ders söyleminin özelliklerinin sözcüksel ve dilbilgisel özelliklerinden yola çıkarak kapsamlı bir betimlemesini yapmak ve söylemin eğitim dili değiştiğinde farklılaşıp, farklılaşmadığını saptamaktır. Bu çalışmada çözümlenen ve betimlenen söylemsel boyutlar şunlardır; etkileşimsel söylem/ bilgisel söylem, dolaysız söylem/olaylı söylem, belirgin mantıksal bağdaşıklık/ gizil mantıksal bağdaşıklık. Akademik ders söyleminin alt türü olarak beşeri bilimler ve mühendislik söylemi incelenmektedir. Çalışmada Biber'ın (1988) bütünceye dayalı, çok boyutlu kesit inceleme yöntemi kullanılmaktadır. Modelde her boyut, bir gurup dilbilgisel özelliği kapsar ve bu özelliklerin metinlerde ne sıklıkta biraraya geldiği sayılarak, (küçük ölçekli inceleme) dilbilgisel özelliklerin biraraya geldiklerinde oluşturdukları örüntü betimlenir (büyük ölçekli inceleme). Çalışmada küçük ve büyük ölçekli incelemenin sonucunda, eğitim dili değiştiğinde, akademik ders söyleminin, sözcüksel dilbilgisel ve söylemsel özelliklerinin de değiştiği görülmüştür. Ders söyleminde, alt türün de söylem özelliklerini oluşturmakta önemli rolü olduğu belirtilmelidir.

Anahtar Sözcükler: Söylem Çözümlemesi, Kesit Çözümlemesi, Bütünce İncelemesi, Eğitim Dili, Akademik Ders Söylemi.

ABSTRACT

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The study of discourse considered both written and spoken language as its subject matter. Discourse analysis has various approaches. Register analysis based on analysis of natural texts (corpus), is one of the most popular one because it depends on both qualitative and quantitative analytical techniques. Since it is a corpus based approach, register analysis enables comparative analysis of register variation in languages. The aim of this study is to identify the discoursal features of the academic lectures with Turkish and English media of instruction in terms of planned versus unplanned or interactional versus informational discourse, argumentative versus reported presentation and overt versus logical cohesion comparatively, and to determine whether the discourse changes with the medium of instruction. Moreover, humanities and engineering are determined as subgenres of academic lectures. The study adopts Biber's multi-dimensional (MD) register analysis approach which is based on a computer corpus to identify text based association patterns. In this approach, the discourse corpus is analysed by counting the frequency of discourse elements categories and features (microscopic analysis) in order to determine patterned co-occurrence of linguistic features (macroscopic analysis). Considering the findings of the microscopic and macroscopic analysis it is possible to state that when the medium of instruction changes in lecture register the commonly used lexico-grammatical features and some discoursal features may change as well. Furthermore, in the analysis of lecture register academic sub genres or the subject matter play an important role.

Keywords: Discourse Analysis, Register Analysis, Corpus Analysis, Medium of Instruction, Lecture Discourse.

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CHAPTER 1
INTRODUCTION

1.1 INTRODUCTION

The purpose of this introduction is to give a short history of how the field of discourse processes emerged and then to examine the current trends in discourse analysis (DA) studies. To survey the field of discourse analysis is problematic in terms of defining what is included in discourse analysis itself. It is generally accepted that "discourse takes us beyond the study of the sentence" (Blakemore, 1995; cited in Schiffrin, Tannen and Hamilton; 2002). Retrospectively, it may be claimed that the "origins of modern discourse analysis are classical rhetoric and the grammatica, which was concerned with the rules of correct language use" (van Dijk 1985:1). It is possible to draw a conclusion that various approaches to language would influence the development of discourse analysis. Therefore, the first approaches towards discourse analysis were structuralist. The term was first used by Harris, in his book 'Discourse Analysis Reprints'. According to Harris (1951), "discourse is a structural unit which can be studied by analogy with the sentence" (Blakemore, 1995; cited in Schiffrin, Tannen and Hamilton 2002). The analogy is between grammar and discourse analysis; "grammar is about how words combine to form sentences and discourse analysis is about how sentences combine to form texts" (Salkie, 1995; cited in Blakemore in Schiffrin, Tannen and Hamilton, 2002:100). Following it, the term discourse analysis is used to refer to "the attempts to study the organization of language above the sentence or above the clause, and therefore to study larger linguistic units" (Stubbs 1996:1).

The functional approach towards the analysis of sentence and discourse structure influenced the development of discourse analysis studies (van Dijk, 1985). In Halliday and Hasan (1976:2) text is defined as "a unit of language in use". This is a functionalist approach towards discourse analysis because according to this view language must be studied in terms of its function in communication. Stubbs (1983:9) mentions that

"discourse implies interactive dialogue; whereas text implies non interactive monologue; one talks of written text versus spoken discourse." Van Dijk (1997) made distinction between the terms 'text' and 'talk'. Talk refers to everyday conversations, debates or interviews whereas text refers to written interaction or written communication. Van Dijk (1997:3) also emphasized that "discourse studies should deal both with the properties of text and talk in context" However, in the modern approach the term "discourse analysis is used as a super ordinate term for a multiplicity of studies of 'text', 'conversation' and varieties of language use at a super-sentential level" (Bolton, 1992 in van Dijk, 1997:14). In other words, there is not a theoretical distinction between the terms 'text' and 'talk'. These terms are treated as unified under the name of discourse.

In the Chomskyan approach, which favoured idealized knowledge instead of studying the data taken from actual language use, functionalism was regarded as unscientific (Beaugrande 1996:505). However, transformational grammar still cannot explain why one "rewrites 'a' as 'b' in the same context" (Stubbs 1983) or why language users prefer passive constructions although active ones are shorter? (Östman and Virtanen, 1995). According to Chomsky (1986; 83), "discourse is a collection of descriptive statements external to the mind"

In 1960's functional orientation of linguistics regained importance. "The notions such as topic and comment in the study of functional sentence perspective provided a natural stimulus to take discourse studies into account" (van Dijk, 1985:4). In 1970's discourse studies were carried out under the category of register analysis and grammatical rhetoric analysis. The aim of discourse analysis is to investigate the relationship between grammatical choice and rhetorical function in written English in science. In this approach the writer's preferences regarding syntactic structures are determined (van Dijk, 1989). The developments in related disciplines such as philosophy and Psychology led to multidisciplinary studies and towards the end of 1970's, discourse analysis, concerned with language use, emerged as an autonomous but a multifaceted discipline. Discourse analysis studies have a cross-disciplinary nature and despite the differences of approach and method, it is possible to make a systematic analysis from formal linguistics to cognitive, social and educational Psychology. In recent years,

discourse analysis of professional contexts seems to be widespread. Some of the areas covered in this approach are, law, order and academic genres.

Discourse analysis officially flourished with the publication of the journal 'Discourse Processes' in 1978. The advances in other disciplines such as cognitive Psychology, sociolinguistics and psycholinguistics led to a new understanding that sentence level analysis is not acceptable anymore. Graesser, Gernsbacher and Goldman (2003: 2) explain it as the following; "Researchers became interested in discourse when they became dissatisfied with the sentence or utterance as the unit of analysis in their investigations of language". During this period linguistic studies involved decontextualized data and the idea of describing naturally occurring language in its context has gained importance. Discourse cannot entirely be reduced to sentences and utterances because discourse has a context, cohesion, coherence, and rhetorical structure that weave together.

Discourse analysis has become an increasingly attractive analytic method for researchers. According to the widely agreed upon definition, DA is the analysis of language use beyond the level of sentence constitutes. However, "the term discourse has gone through complex definitional vicissitudes" (Grimshaw, 1986 in Graesser, Gernsbacher and Goldman 2003:26). First, the term developed a semantic variety, later its semantic features disappeared and by the 19th century the term had become "a spoken or written treatment of a subject in which it is handled or discussed at length; a dissertation treatise, homily, sermon or like" (Grimshaw,1986 in Graesser, Gernsbacher and Goldman 2003:26). The term discourse analysis is explained by Trask (1999) as an attempt to extend our highly successful analysis of sentence structure to units larger than the sentence. Today, discourse analysis has been accepted as an umbrella term for the analysis of spoken and written language within context. Stubbs (1998:1) explains discourse as "attempts to study the organization of language above the sentence or above the clause, and therefore, to study larger linguistic units such as conversational exchanges or written texts". DA is also concerned with language in use in social contexts.

All the definitions of discourse have certain common points. Schiffrin, Tannen, Hamilton (2001:1) summarize the main points of discourse analysis studies as follows: 1) Anything beyond sentence level, 2) actual language use 3) a broader range of social practice that includes non linguistic and non specific instances of language. Van Dijk (1997:2), on the other hand, summarizes three main dimensions of discourse: 1) language use 2) communication of beliefs 3) interaction in social situations. As easily observed, the common points might slightly change according to different views but still share the main characteristics. The common concern in all these approaches is that they stress the need to see language as a dynamic, social, interactive phenomenon. It is emphasized that meaning is conveyed not by single sentences but by more complex exchanges, in which the participants' beliefs and expectations, the knowledge they share about each other and about the world, and the situation in which they interact, play a crucial part. Today the basic study areas of discourse analysis are written and spoken language, because both printed texts and oral conversations consist of a sequence of sentences and utterances (Graesser, Gernsbacher and Goldman 2003). It is obvious that in the area of discourse analysis there are specialties such as text analysis and conversation analysis, which employ special methods to study particular discourses.

The disciplinary link between discourse analysis and applied research is complex. Applied linguistics is relevant to any real world, language related problem that an interdisciplinary approach can address (Poole; in Kaplan 2002:73). This expanded focus of applied linguistics has brought forth closer ties with DA. Poole (in Kaplan 2002: 73) states that "With DA increasingly a methodology of choice for investigating broader applied linguistics concerns such as the language of politics, professions, family, language minority issues, and classroom interaction" Poole (in Kaplan, 2002:74) suggests that applied linguistics has more far reaching propositions than DA that relates features of language use to multiple contextual dimensions such as ideological orientation, relations of power or institutional constraints. In recent years, a modified version of this perspective has motivated much of the growing discourse analytic work within applied linguistics. In DA the types of analysis have varied widely and included the sequential organization of talk in speech activities, and the frequency, scope and distribution of specific interactional sequences or speech acts. The complexity of these

applications is deepened by the question of whether data should also be analyzed quantitatively, with a focus on contextualized descriptions of language in use.

When it comes to the relation of discourse to linguistics, van Dijk (1995:1) states that the linguistic study of discourse is a part of the more general study of natural language and it must share its basic aims with linguistic theories in general and with grammar in particular. It is claimed that the analysis of sentence structure should be based on an information structure of a given- new or topic-comment type in a discourse sequence (Stubbs, 1996). Furthermore, DA is any kind of investigation of the structure of discourse and it is an approach based upon familiar grammatical concepts; to put it another way, DA is an attempt to extend our highly successful analysis of sentence structure to units larger than the sentence. Stubbs (1997:3) states that "Much of the fascination of discourse analysis derives from the realization that the boundaries of linguistics are being redrawn." It has become clear that a coherent view of language, including syntax, must take account of discourse phenomena.

In recent years, discourse analysis of professional contexts seems to be widespread. Some of the areas covered in this approach are, law, order and academic genres. In the 20th century, the quality of classroom discourse has become a prominent focus. DA is helping to explicate the actions in which the primary goal of schools –learning is realized.

> To a great extent, the fabric of schooling is woven of linguistic interaction.
> One of the central concerns of discourse analysis in educational settings has
> been to uncover the ways in which talk at school is unique and thus what
> students must be able to do linguistically in order to succeed there. (Adger
> in Schiffrin, Tannen, Hamilton; 2001)

Since 1970 research methods have contributed significantly to developing analytic techniques for classroom talk.

> The rise in discourse analytic study of educational settings is part of a
> broader embracing of qualitative study in a domain long dominated by

behavioural theory and quantitative research methods. Reasons for this shift are complex, but a prime influence came from the imperative-moral, legal, and economic- to educate a diverse population of students". (Adger in Schiffrin, Tannen, Hamilton 2001)

The research is relevant to criticizing what is going on in classrooms and to answering questions about how and where teaching and learning succeed or fail (Adger in Schiffrin et al 2001). Since the term 'discourse' refers to any stretch of spoken or written language longer than a single sentence, recently Gee (1996; in Cazden and Beck, 2003) made an influential distinction between the meaning of what he called little 'd' discourse and big 'D' Discourse. He made such a distinction because according to Gee discourse with a capital D is

> a socially accepted association among ways of using language, other symbolic expressions, and artefacts of thinking, feeling, believing, valuing and acting that can be used to identify oneself as a member of a socially meaningful group or social network or to signal a socially meaningful role (Gee 1996:131 in Cazden and Beck 2003).

The little 'd', 'discourse' refers to any sequence of talk and 'D' Discourse as a particular form of talk that expresses a speaker's identity and interactional role. This definition highlights the fact that "learning new ways with words entails taking on new interactional roles and the new identities they create and express" (Cazden and Beck 2003). Thus we refer to classroom discourse with a little 'd' and academic Discourse with a 'big D'.

Most work on classroom discourse can be characterized as applied discourse analysis or interactional analysis, which is an approach in discourse analysis and which can be defined as the interpretation of discourse by the reader / listener (Bhatia, 1993: 8). This approach to language use verifies that language use is an interactional activity.

Currently, there are several dominant approaches in the field of discourse; these are discourse Psychology, computational discourse, discourse technologies, conversation

analysis, hybrid qualitative and quantitative approaches, and corpus analysis (Graesser, Gernsbacher and Goldman 2003). Discourse Psychology covers text comprehension, language use, non-literal speech acts. Discourse psychologists test theories by collecting data from humans either during or after discourse comprehension or production. Computational discourse combines discourse processes and computer science (Graesser, Gernsbacher and Goldman 2003:12). Since discourse is at the heart of any human machine system, technology designers need discourse researchers during the design process of animated conversational agents or automated telephone answering systems, therefore, technological discourse gained importance lately. Conversational Analysis analyses moment-to-moment interaction and the sequences of linguistic discourse actions that create meaning. The hybrid approach covers both qualitative analysis, which identifies discourse categories sequences and patterns on various dimensions and quantitative analysis, which analyses data with statistics and other quantitative techniques (Graesser, Gernsbacher and Goldman 2003). Corpus analysis is one of the most popular approaches of discourse analysis. Over the past years, corpus based studies have become more common because it can provide a scope and reliability of analysis. It is based on empirical analysis of natural texts (corpus) and depends on both qualitative and quantitative analytical techniques (Biber, Conrad and Reppen 1996). In this regard, this trend in discourse analysis is seen both in ESP/EAP (English for Specific/Academic Purposes) research and in register variation research in applied linguistics. Moreover, a corpus based approach enables comparative analysis of register variation. Biber's (1988) multi-dimensional (MD) analytic approach is also based on a computer corpus to identify text based association patterns. This particular study also adopts this approach.

> In this approach, the researcher collects or identifies a corpus of naturalistic discourse excerpts that are relevant to the particular research question being investigated. The discourse corpus is analysed by counting the frequency of discourse elements, categories, features, sequences, global patterns, or combinations of these linguistic/discourse entities (Biber in Graesser, Gernsbacher and Goldman 2003:7).

The frequencies can be normalized by counting the number of occurrences per number of words (incidence score). Usually researchers collect their own corpus of discourse samples and the discourse corpus needs to be sampled "systematically rather than with bias" (Graesser, Gernsbacher and Goldman 2003:8). This particular study doesn't have the hard-core scientific approach to sampling discourse excerpts because the sample size is small. This study adopts an alternative approach based on a small representative sample of cases. According to corpus based analysis approach, much can be learned from a detailed analysis of a small representative sample of cases. This study might be considered as a register analysis as well; in fact "genre and register are the two constituent elements of discourse" (Grimshaw in Graesser, Gernsbacher and Goldman 2003:27). Ferguson (in Grimshaw in Graesser, Gernsbacher and Goldman 2003:42) explains genre and register like this:

> The two powerful tools of analysis and understanding available to the student of human language are the analysis of types of discourse and the analysis of how language varies depending on the occasions of its use. The former, the study of discourse types, is what is traditionally called 'genre analyses. The latter, the study of language variation by use, is referred to by some as 'register analysis'.

The term genre is originally a French word and in its broadest sense it means 'kind' or 'sort' and this meaning is very similar to its linguistic meaning which is a variety of discourse such as conversation, lecture, prayer. However, Biber (2001, Schffrin, Tannen and Hamilton) use 'register' as a cover term for any "variety associated with a particular configuration of situational characteristics and purposes". This study particularly deals with university lectures and adopts Biber's approach and it is considered as a study of register which is "seen as a more inclusive domain" (Grimshaw in Graesser, Gernsbacher and Goldman 2003:53) rather than genre analysis. The aim of it is to determine patterned co-occurrence of linguistic features in samples of lectures whose medium of instruction is Turkish (L1) and English (L2). The term 'register' has gained acceptance for situation specific use (Hymes, 1974:59). Halliday (1976:112) accepts register as a form of prediction.

The notion of register is a form of prediction: given that we know the situation, the social context of language use, we can predict a great deal about the language that will occur with reasonable probability of being right. The important theoretical question then is; what do we need to know about the social context in order to make such predictions? (Grimshaw in Graesser, Gernsbacher and Goldman 2003:55)

In other words, the features of the context of situation determine the kind of language used or what is referred to as "register, that is, the types of meaning that are selected, and their expression in grammar and vocabulary" (Halliday 1976:50). Halliday employs the term 'register' to encapsulate the relationship between texts and social processes; on the other hand he employs genre in a more limited sense. He sees it as the organizational structure of the text (Leckie-Terry 1995:5). The aim of recent discourse processes is to describe the discoursal features of the text in addition to its lexico-grammatical features. In such studies grammatical patterns and structures are being analysed as well as their communicative purposes and social context.

Discourse analysis studies in Turkish are usually in the category of register analysis. The following studies which are important for this particular study are also structural rather than functional. Karaş (1995) analysed the discourse structure of journals. Demonstrative pronouns employed in newspapers are analysed in the study of Ozil and Şenöz (1996). Furthermore, connectives in newspaper articles are studied by Ilgın (1997). The language of social science texts and literary texts is analysed by Oktar and Yağcıoğlu (1996) in terms of their grammatical patterns. Özyıldırım (1999a, 1999b, 2000) analysed lexical, syntactic, discursive and cognitive patterns of the Turkish legislative studies. Akar (2000) examined the request forms employed in business writing. Also Uslu (2001) studied the use of causal structure in Turkish. Yarar (2002) analysed official language of Turkish attempting to describe the lexicon-grammatical features and discoursal features using Biber's approach. Özmen (2005) analysed the discourse of news reports. Fidan (2005) analyzed discourse markers in scientific texts.

1.2   STATEMENT OF THE PROBLEM

Spoken language use in different discourse communities and particularly, in educational settings has been studied and described to reach an understanding of language use and of communicative functions of certain grammatical patterns. However, the language used in academic contexts in universities with an English and Turkish medium of instruction in Turkey has never been described in terms of its discoursal features. The implementation of English-medium instruction by non-native speaking lecturers to non-native speaking students causes problems both for lecturers and students; the focus on language production influences the lecturers' teaching skills in the sense that they are less flexible in conveying the contents of the lecture material, resulting in long monologues, a lack of rapport with students, humour and interaction (Klaassen & De Graaf, 1999).

1.3   AIMS OF THE STUDY

This study mainly aims at analysing lecture discourse in English and Turkish medium universities comparatively. In other words the central concern of this research is describing lexico-grammatical features of language in different academic discourse communities with Turkish and English media of instruction and to determine whether the discoursal features change with the medium of instruction. The study is going to identify discoursal features of the lectures with Turkish and English media of instruction in terms of planned versus unplanned or interactional versus informational discourse, argumentative versus reported presentation and overt versus logical cohesion comparatively.

1.4   RESEARCH QUESTIONS

This study has the following research questions to be answered in accordance with the aims mentioned above.

1. Do English medium and Turkish medium academic language in Turkish universities have different discoursal features comparatively?

2. What are the lexico-grammatical features of the academic language of Turkish and English medium departments?

- What are the lexico-grammatical features of Turkish medium instruction lecture discourse in Psychology and Geological engineering departments?

- What are the lexico-grammatical features of English medium instruction lecture discourse in Psychology and Geological engineering departments?

1.5 ASSUMPTIONS

In this study it is assumed that although the communicative purpose is the same in both situations where the medium of instruction is Turkish and English there might be register variation due to language change. Furthermore, in terms of discoursal features and specific register markers these two registers are assumed to be different.

1.6 METHOD OF THE STUDY

1.6.1 Data Collection

This study is undertaken in two different universities, namely Hacettepe University and METU in Ankara, in Turkey. METU is the representative of English medium universities because the medium of instruction is English in all departments. Hacettepe, on the other hand, is representing the Turkish medium instruction. Indeed, at Hacettepe University medium of instruction is English in some departments, 30% English in others and Turkish in the rest. The study will involve the two subject departments in both universities; the department of Geological Engineering (Faculty of Engineering) and the department of Psychology (Faculty of Letters and Humanities). The medium of instruction in the Department of Psychology at Hacettepe University is entirely Turkish, whereas at the Department of Geological Engineering 30% English (but for this research a particular course with Turkish medium instruction is observed at this

department.). These departments are chosen on purpose. The former is chosen as the representative of Engineering Faculty whereas the latter is the representative of Social Sciences. To be able to make a contrastive analysis, the similar, if possible the same course is observed both with an English and Turkish medium of instruction. Since, this is a descriptive study no judgmental conclusions will be drawn at the end. The courses are third year undergraduate courses and the rationale behind it is that the first and second year courses are mostly introductory courses however this study necessitates the analysis of specific departmental courses; furthermore, first year students might be under the influence of preparatory English in terms of oral skills. In both universities, one year of preparatory class in English is a prerequisite for the students who do not pass the proficiency exam.

The discourse communities were observed in their natural settings with no problem of the 'observer's paradox' (Labov, 1972). The research objectives are not known by the observed. Field notes and tape recording during lecture observations provided the author with data on the oral interaction discourse in lectures. In the spring semester of 2003-2004 academic year 8 lectures were taped, and the following fall semester again 8 lectures were recorded. Altogether 16 lectures have been observed and recorded. Eight of those recordings belong to HU Geological Engineering and Psychology departments (four lectures for each department); the other eight belong to METU Geological Engineering and Psychology departments. The number of words in the sample of Geological an engineering is 11.265, in the sample of Psychology it is 13.151. The corpus of the study is 24.416 words. The lexico-grammatical features of the corpus have been analysed. Each course is about 45-50 minutes in all departments.

1.6.2   Data Analysis

This study is based on the model developed by Biber (1988) to describe the lexico-grammatical and discoursal features of the classroom language in Turkish universities whose mediums of instruction are English and Turkish. Biber, Conrad and Reppen (1998) named their approach as 'multi-dimensional register analysis' (MD). The distinctive methodological characteristics of this study are; the use of the text corpus (based on the transcripts of the taped lectures) and the use of statistical techniques to

determine co-occurrence relations among the linguistic features. In the original model the frequency of certain linguistic features are counted by using computer programs. However, in the present study certain linguistic features are counted by hand because for Turkish there is not such a computer program available; furthermore, it is very difficult to develop such a program due to the structure of Turkish.

The statistical, quantitative analysis of lexico-grammatical patterns constitutes the microscopic analysis of the corpus. The dimensions constitute the macroscopic analysis of the corpus. Biber 1988; Biber, Conrad and Reppen (1996) define dimension as 'the set of co-occurring features'. These are groups of linguistic features that co-occur with high frequency in texts. Having adapted the original model to the corpus of the present study and to Turkish, the model used in the study includes three dimensions and nearly 30 grammatical patterns (Biber and Hared 1994).

Dimension 1: Structural Elaboration: Interactional (Unplanned) vs. (Informational (Planned)

- Interactional features (Positive)
  Yes/no questions, or coordination, stance adjectives, what if questions, time deicticts, focus markers, amplifiers, down toners, imperatives, wh-questions, 1st and 2nd person pronouns, causative adverbial clauses

- Informational features (Negative)
  Relative clauses, 'and' clause/phrase coordination, common nouns, complement clauses, agentless passives.

Dimension 2: Argumentative vs. Reported Presentation

- Argumentative features (Positive)
  Present tense, Predicative adjectives, possibility models, concession conjuncts

- Reported Features (Negative)

Past tense, nouns (generic and specific)

Dimension 3: Overt vs. Implicit Logical Cohesion

- Overt Logical Cohesion Features (Positive)
  Conjuncts, multi-functional adverbial subordination, discourse particles, action verbs, post/prepositions, conditional clause connectors

- Implicit Logical cohesion (Negative features)
  Nouns, possessive markers, passive constructions

The frequencies of the lexico-grammatical patterns are counted by hand and the values are presented in terms of frequency and percentage. The statistical values of the linguistic structures are identified using the SPSS (Statistical Program for Social Sciences)

1.7 LIMITATIONS

First of all the corpus of the study or the sample size is nearly 25.000 words and this is limited to make generalizations.

A second limitation is that this study was undertaken in two different universities, namely Hacettepe University and METU in Ankara, in Turkey. METU is the representative of English medium universities because the medium of instruction is English in all departments. Hacettepe, on the other hand, represents the Turkish medium instruction. The study involved the two subgenres in both universities namely, the department of Geological Engineering (Faculty of Engineering) and the department of Psychology (Faculty of Letters and Social Scieces). These are the representatives of two different fields; engineering faculty and humanities or social sciences, however, these two genres do not adequately represent academic lectures. Involving other departments would have increased the reliability of the data.

In addition, in the original model of the study, the frequency of certain linguistic features is counted by using computer programs and this increases reliability. However, in the present study, certain linguistic features are counted by hand because for Turkish there is not such a computer program available.

Personal style of the instructors is not considered within the scope of this study because the method of the study is structural rather than stylistic.

In the present study certain linguistic features are counted by hand because for Turkish there is not such a computer program available due to its structure.

1.8   OUTLINE OF THE STUDY

The present study is organized into five chapters. The first one is the introduction to the subject; discourse analysis. Furthermore, the introduction includes the aim/s of the study, research questions, corpus and the method of the study. The second chapter is the Background to the Study; this chapter presents information on spoken discourse analysis, grammatical and communicative features of academic language specifically in social sciences and engineering faculties. Moreover, this chapter comprises information about multi-dimensional approach and register analysis. The following chapter, Analysis of Data and Discussion, provides an analysis and description of the findings of the microscopic and macroscopic analyses of the corpus. The last chapter, Conclusion presents the interpretation of the results as well as future remarks.

CHAPTER 2
BACKGROUND TO THE STUDY

This chapter intends to present background information on spoken discourse analysis, classroom language and specifically of academic lectures, focusing on the grammatical and discoursal features; its functions and communicative features. Furthermore, it aims to present an overview of literature dealing with the multi-dimensional approach and register analysis.

2.1 ANALYSING SPOKEN DISCOURSE

There has been considerable disagreement concerning the need for a linguistic comparison of speech and writing. Historically written language was accepted as the true form of language and speech was not worth of study. With the development of phonetics in the nineteenth century in Britain linguists began to study speech. Biber states that (1988:5) "through the work of Henry Sweet and Daniel Jones, encouraged linguists to study speech. Discourse analysis have begun with the analysis of sounds; the focus is on the sounds of spoken discourse, in other words on phonology (van Dijk, 1997). The early studies of spoken discourse analysis examined how pronunciation, emphasis, intonation etc. contribute to the sound structures of discourse. In spoken discourse, paralinguistic features as well as sounds such as gestures, body language, and proximity are important, because it is believed that together with the sounds of discourse, non verbal activity plays an important role in the interpretation of discourse. In the twentieth century, speech was considered worth serious linguistic analysis and speech is claimed to have linguistic primacy (Stubbs 1983). In this century, systemicist like Firthians, were interested in the relation between language and context. Following Malinowski, they have argued that you can not understand the meaning of what

someone says or writes unless you know something about the context. The idea about the relationship between language and context was taken over from Malinowski into linguistics by Firth (Martin, 2000 in Burns and Coffin). Until very recently, most linguists have assumed the primacy of oral language (Bloomfield, 1993, Fillmore, 1981, Gardner 1984). Early linguists such as Boas, Sapir and Bloomfield were all speech oriented (Stubbs, 1997).

From a linguistic perspective, the original discourse analysis work was motivated by a wish to make a description of spoken interaction. (Sinclair and Coulthard 1975) Speech act theory, which is the first approach to the study of language use as action, offered a functional theory of meaning. It emphasizes the fact that when people use language they are doing several things at the same time. 'Locutionary act' is producing an utterance in some language. Moreover, what is new in this theory is the 'illocutionary act' or the social dimension of this theory because it refers to what we do when we produce a meaningful utterance in some context like an assertion, a question etc (van Dijk, 1997). As Sinclair and Coulthard (1975:79) mention "Austin's notion of 'illocutionary force' was a powerful agent in reconceptualizing the way language relates to the world". Spoken discourse comprises everyday conversations, all types of dialogues; such as debates or doctor-patient interaction (van Dijk, 1997). Contemporary spoken discourse studies are generally oriented towards the analysis of ongoing verbal interaction in informal conversations as well as other formal or institutional dialogues. Indeed, talk is often considered as the basic form of discourse (van Dijk, 1997).

2.1.1 Linguistic Features and Communicative Functions of Spoken Language

There are many linguistic studies of speech and writing, however still the characteristics of the two modes haven't been described in detail yet. The general view is that written language is structurally more complex, formal and abstract whereas spoken language is simple, concrete and context-dependent (Biber, 1988). "Writing is also more explicit than speech, in that it has complete idea units with all assumptions and logical relations encoded in the text" (De Vito, 1966, Olson 1977 in Biber 1988:47). Furthermore, speech is considered personally involved and dependent on shared situation and background knowledge (Olson, 1977, in Biber 1988). Writing is also claimed to be

deliberately more organized and planned than speech and characterized by a higher concentration of new information (Stubbs, 1998). To support all these generalizations researchers have studied the specific linguistic features in spoken and written texts. For instance in order to measure structural complexity, the frequency of different subordinate constructions, prepositional phrases and adjectives have been measured; because the frequent use of these features are accepted as the indicator of complexity in texts. Explicitness, on the other hand, has been measured by features such as word length or the ratio of the number of different words to total number of words (Biber, 1988). Frequent use of passives is accepted as the indicator of decontextualization and frequent use of personal pronouns and questions determine personal involvement. Therefore, the use of personal pronouns is common in spoken discourse whereas nominalizations and participles are rare. In terms of grammatical or structural features of spoken discourse, it is said that, there is coordination instead of subordination, active structures rather than passive structures. However, none of these generalizations are uniformly accepted; there are contradictions among the researchers; for example some researchers (O'Donnel, 1974; Kroll, 1977; Kay, 1997; Chafe, 1982; and Brown and Yule, 1983) support the findings about the frequent use of subordinate constructions in writing, whereas, Halliday (1979) found more complex structures in speech. Also Poole and Field (1976) found a higher ratio of dependent clauses in speech. When it comes to passive structures there is again striking contradiction among researchers. Although Chafe (1985) and Brown and Yule (1983) claim that frequent use of passives are the characteristic of written language, Blankenship (1962) found nearly equal number of passives in the two modes. There are other generalizations for spoken language; for example, the use of conditionals (Athanasiadou and Dirven 1997; Ferguson 2001) and the use of demonstrative modifiers and deictic terms are common in spoken language (Chafe 1982 in Leckie-Terry 1995). The use of downtoners is quite rare when compared to written discourse. Moreover, the use of dependent clauses is rare; especially the use of relative clauses is less common in spoken discourse compared to written language. In spoken language, in the use of 'that clauses' the complementizer 'that' is usually omitted (Biber and Conrad, 2001).

The recent trend in linguistics argues that neither speech nor writing is primary; there are in fact no linguistic differences between speech and writing. Furthermore, the relationship between the two modes must be investigated empirically rather than assumed on a priori basis. The two modes are simply different systems, both deserving careful analysis (deBeugrande 1984b, Kress 1982 in Grabe, 1984). De Beugrande (1993: 256) supported this argument.

> It is now recognized that writing and speech are distinct systems; the norms and functions of each system fit a given situation better than those of the other...There is hardly a dimension of textuality or text processing that does not reflect some significant difference between the spoken and the written modalities...

The arguments strongly favour viewing writing and speech as distinct systems. Biber (1988) also argues that the characterizations of typical speech and typical writing can not be generalized to all types of speaking and writing. They might only be true for conversation and expository prose, the two genres used to represent speech and writing. For other types of speech and writing these generalizations are inadequate or not valid because there are general linguistic differences between these two modes.

Due to the developments, the study of discourse considered both written and spoken language as its subject matter, and it is divided into two basic categories; written and spoken discourse analysis. Spoken discourse analysis is concerned with speech; whereas written discourse analysis is concerned with the language used in written texts. Furthermore, both in written and spoken discourse analysis grammatical approach gained importance. It means that the order of words or phrases in a sentence is not arbitrary; it may have various functions in relation to other sentences in discourse. For spoken discourse analysis, the syntactic study of discourse gained special importance. There are studies on the distribution of information throughout a discourse, like the use of definite NP's or pronouns and the discursive functions of word order (van Dijk, 1997).

Rather than spoken or written discourse, a more detailed division of discourse existed; planned and unplanned discourse (Ochs, 1979). Generalising discourse in terms of spoken and written is necessarily preliminary because, as mentioned earlier, spoken language is considered unplanned and situation dependent; however, it is possible to talk about planned spoken discourse as well as unplanned written discourse. The idea of 'forethought' and 'organization' determines planned or unplanned discourse. Unplanned discourse is spontaneous, and has not been thought out or organized prior to its expression. The possible example of unplanned spoken discourse might be dinner table conversations and the example of unplanned written discourse might be personal letters. Whereas planned discourse is discourse that has been thought out and organized prior to its expression, for example, scientific articles are the examples of planned written discourse and class lectures are the examples of planned spoken discourse. Therefore, spoken discourse might be designed in advance; even the lexical items or structures in which the idea is to be expressed might be designed in advance (Ochs, 1979). Consequently, it is possible to talk about planned spoken discourse as well as unplanned written discourse. For example, journalists, politicians, and academics usually plan their discourse; they even work out details in advance. Similarly, as Ochs (1979:77) mentions "a novelist trying to recreate a casual situational context will use many of the features of unplanned discourse like deletion or hesitation".

Some researchers, on the other hand, (Tannen 1982, Chafe and Danielewicz, 1986; cited in Biber and Conrad, 2001) focus on the communicative task as a predicator of linguistic variation rather than generalising the differences between speech and writing. According to this view, "equivalent communicative tasks should be compared to isolate the existence of mode differences" (Biber and Conrad, 2001). Biber's (1986, 1988) MD analysis of register is an example of this approach. Biber analyzes linguistic variation among the range of registers within each mode, in addition to comparing registers across the spoken and written modes. Furthermore, it is possible, with this approach, to compare registers across the spoken and written modes. 'Register' in this approach; refer to "varieties defined in terms of general situational parameters" (Biber and Conrad, 2001: 175). Here the term register is used as an umbrella term for any variety associated with a particular purpose and situational characteristics. Register is the

combination of some characteristics like, the purpose of the communication, the participants and their relationships, the setting, the level of formality and the channel of communication (Biber and Conrad, 2001). Identification of the salient components of the situation enables an interpretation of the roles played by particular linguistic features within that context.

2.1.2 Components of Spoken Discourse

Components of spoken discourse influence the linguistic characteristics of it; therefore, to analyse the components is considered important. There are several studies on the components of the speech situation. Fishman (1972) identifies the primary components as the participants and the relationship among them, the topic and the setting. Brown and Fraser (1979) added several sub-categories and Biber (1988:31) summarizes those categories as follows; 1) participant roles and characteristics, 2) relations among the participants, 3) setting, 4) topic, 5) purpose, 6) social evaluation, 7) relations of participants to the text, and 8) channel.

Participant roles and characteristics refer to the communicative roles as well as their individual characteristics that influence their use of language (e.g. personality, interests, mood etc.) However, personal characteristics are not the concern of linguistic research. Participant roles are the addressor/speaker, addressee/hearer and the audience. The addresser produces the message, the addressee receives the message and the audience are the participants who hear the message. Relations among the participants refer to the social role relations among participants. It is believed that the relations among participants in terms of relative social power and status are important; because it is directly related with the discourse. Moreover, personal relations like respect etc. and the extent of shared knowledge like cultural world knowledge and specific personal knowledge are important. Furthermore, the plurality of participants should be taken into consideration because "addressing a large class of people is very different from addressing an individual; similarly a group production of a message is very different from the individual production" (Biber, 1988:31).

Setting is the place where the communication takes place; in other words the physical and temporal context. The presence or absence of an audience might be considered part of the setting. The topic is about the message. Topic and purpose are closely related components of discourse. Purpose generally refers to the participants' expectations from the communicative event. Social evaluation refers to the attitudes of the participants towards the content of the message. These attitudes involve feelings, judgements or attitudinal stance. Relation to the text is another important component of the situation. It refers to the ability of the communicative participants to interact with the text. In a speech situation speakers and listeners must produce and comprehend language on line. Channel refers to the medium of the message. There are two types of channel; primary channel refers to either speech or writing or if available sign language, telegraph etc. There are also sub channels like lexical/syntactic, prosodic and paralinguistic. (Biber, 1988:29-30)

2.1.3 Functions of Linguistic Features

The notions of 'function' and 'situation' are closely related. The analysis of components of spoken discourse situation is important in order to identify the functions of particular linguistic features to variation is in the communicative situation. In register analysis studies, linguistic variation associated with differences in use rather than group differences are associated with the user (Biber, 1988). Brown and Fraser (1979 in Biber 1988:34) discuss the functions of linguistic features as markers of the situation, that is, the ways in which linguistic features function to distinguish different aspects of the communicative situation. A group of linguistic features can share a common function and Biber's multi dimensional approach is based on this idea; because according to Biber (1988), textual dimensions can be interpreted by determining the most widely shared functions underlying a group of co- occurring features. In fact Biber (1988:34) mentions that there are seven major functions that can be served by linguistic features. Each of these functions identifies a type of information that is marked in discourse. These are; 1) ideational, 2) textual, 3) personal, 4) interpersonal, 5) contextual, 6) processing and 7) aesthetic. The two most important functions are ideational and textual functions which are 'strictly linguistic'. They deal with clause structure and text-internal structure.

"Ideational functions refer to the ways in which linguistic form is used to convey prepositional or referential content" (Biber, 1988:34). Spoken discourse, especially face to face conversations, is usually thought to have a very low focus on informational content. Therefore, in spoken discourse there few linguistic features of ideational function such as frequent nouns, prepositional phrases, or a highly varied vocabulary. There are two types of textual functions; to mark information structure or to mark cohesion. Information structure includes marking of focus, topic comment constructions, and theme, by features as clefts, pseudo clefts, extraposed clauses and passives. Cohesion refers to "surface features that mark the ways in which the sentences of a text are referentially related, for example, through the use of pronominal reference, demonstratives, lexical substitution and ellipses" (Halliday and Hasan 1976; in Biber, 1988:34).

The other functions are not as important as ideational and textual functions. Personal functions and interpersonal functions include personal style and group membership as well as interpersonal relationship between participants and the extent of shared knowledge. Contextual functions, on the other hand, include physical and temporal setting and the purpose. Processing functions refer to the production and comprehension demands of the communicative event. Aesthetic functions are those relating to personal as well as cultural attitudes about the forms of language including grammatical prescriptions or individual style (Biber, 1988).

2.2 LANGUAGE OF ACADEMIC LECTURES

This section includes the functional and situational characteristics of academic lectures as well as the lexico grammatical features of academic discourse.

The research on spoken academic discourse lags behind its written counterpart. In the last 15 years some work has been done with university lectures and how they are structured. The research includes some descriptive analyses focusing on macro structures (Camiciottoli, 2004). The term 'macro-markers' was first used by Chaudron and Richards (1986). These are meta-discursive comments on how the lecture itself will be organized, or phrases which signal to listeners what is about to happen. In other

words as Camiciottoli (2004:40) describes "they are typically chunks based on first and second person pronouns and modal verbs, thus constituting a form of interaction between lecturer and audience. In another study (Rounds, 1987) lectures were described in different phases; content, discourse structuring, conclusion, evaluation and interaction. This has macro focuses as well. Other studies are in the area of lecture comprehension which is considered as a major obstacle especially for non native speakers. It is found that the presence of macro markers improved retention and recall in the comprehension tests. However, the micro lexico-grammatical features of academic lectures haven't been described in detail in the literature except the multi-dimensional studies of Biber and Hared (1994).

As Biber (1988) and Sinclair and Coulthard (1975) accept, the characterization of academic lectures is interesting; because although they are the representatives of a spoken genre they show the characteristics of a written genre. Sinclair (1975) states that "classroom discourse was not specially representative, and indeed had a number of unusual features". Inside the classroom, there are two parties and both parties agree that time will be spent in the transfer of information from lecturer to the listeners with the structure of informatives, elicitations and directives to be employed by the lecturer. In a classroom context, the lecturer is in control of structural choices as well as the topic. In fact, in a multi-channel communication situation this case is rare; in other spoken discourse situations, the case is not that simple since other interactants may talk any time for the sake of talking.

For academic lectures, it is possible to talk about a multi-channel communication which is one of the characteristics of a spoken genre. Physical channel refers to the primary channel and a number of sub-channels available for communication. Academic lectures use speaking and the auditory channel is the primary channel. The sub channels like paralinguistic features including prosody and gestures are also available in academic lectures. Furthermore, there is a shared space and time which is again the typical characteristic of a spoken genre. However, in terms of other situational characteristics, academic lectures show literate characteristics like school acquisition and high social value. School acquisition refers to the fact that written genre or literacy is taught and learned in schools while speech is naturally acquired in the home and Biber (1988:40)

states that "this results in literacy taking on the de-contextualized and formal aspects of educational institutions". In terms of interaction, academic lectures show the characteristics of a typical spoken genre. In academic lectures, listeners have the opportunity to respond directly, request clarification of earlier statements or indicate understanding. Moreover, there is almost no shared personal knowledge which refers to the speaker's knowledge of the addressees' backgrounds like their personalities, beliefs, knowledge, interests etc. Academic lectures are characterized by high informational focus and there is a negotiable goal among the participants. It refers to the fact that just like typical written genre, academic lectures are characterized by ideational purposes.

Functional notions, which were proposed by Chafe and Danielewicz (1986, in Biber 1988), are marked by several linguistic features. There are four functional notions; integration, fragmentation, involvement, detachment. Integration is the way of packaging large amount of information into a few words and in this sense it seems to be the characteristic of written texts; however, for academic lectures it is also possible to talk about integration. Biber (1988:43) states that "features that are used to integrate information into a text include attributive adjectives, prepositional phrase series, phrasal coordination and careful word choice." Academic lectures have those features to some extent. On the other hand, fragmentation is the typical characteristic of speech and refers to the linguistic characteristics of text produced under time constraints. Since it is produced under time constraint, the structure is looser and fragmented. The linguistic features are the use of simple conjunctions or no connectives at all. Academic lectures are not fragmented like typical spoken discourse. When it comes to involvement as the name suggests it refers to the features that reflect the interaction between speaker and listener. Academic lectures are involved in this sense. The linguistic features that show the characteristics of an involved text are the use of second person pronouns, questions, imperatives, emphatics and amplifiers. On the contrary, detached texts are marked by agentless passives and nominalizations which show no interaction typically between the reader and the writer. Academic lectures are in this sense neither totally involved nor totally detached. For example academic lectures are informational texts produced under time constraints, however, at the same time the information is given in a fragmented manner instead of being tightly integrated into the text like in written genres. In other

words, they are integrated but fragmented at the same time. Moreover, academic lectures are structurally elaborated because they have markedly informational purposes.

In terms of lexico-grammatical features academic lectures have various characteristics. Lexically, like all other types of spoken registers, academic lectures are markedly non-elaborated in their lexical characteristics because of their on line production circumstances. In academic lectures, there are frequent contracted forms and some WH questions (Biber and Hared 1994). Structurally they are elaborated relying on clefts and dependent clause constructions; like causative adverbial subordinators, more than simple clause constructions (Biber and Hared 1994). Since academic lectures have both the characteristics of a written genre and a spoken genre, it is possible to come across with first and second person pronouns and discourse particles which are the characteristics of an unplanned spoken discourse as well as nouns, adjectives, agentless passives and relative clauses which are the characteristics of a planned written discourse.

2.3 REGISTER ANALYSIS

Understanding language should take into account the text itself as well as the discursive processes by which text is produced and interpreted. Such an understanding is based on the social and institutional determinations which produced the text. To achieve this knowledge, "it is essential to develop a means of registerally specifying texts, spoken or written, in terms of their social, historical and discursive functions and their linguistic structure" (Leckie-Tarry, 1995:5). Therefore, a theory of register must account for the complex system of linguistic, social and cultural relationships between text and context.

There is considerable disagreement concerning the definition of register and its relation to the constructs of genre, text type, and style. The term 'register' came into currency in 1960's. In 1964, Ure (1964) described register as "a variety according to use in the sense that each speaker has a range of varieties and chooses between them at different times" (Leckie-Tarry, 1995:6). According to Halliday (1976), register is constituted by the linguistic features which are typically associated with a configuration of situational features. Later, Halliday's definition includes context and he states that register is

determined, by what is taking place, who is taking part and what part the language is playing (Halliday, 1978 in Leckie-Tarry, 1995:5). Halliday's perception of register puts emphasis on context. This relating text into context view was acknowledged by many theorists and it is accepted that register is the view that both situational and linguiatic variables need to be an essential part of the process of register characterization.

Biber (1994) used the term as a general cover term for all language varieties associated with different situations and purposes. The term has been used in many different ways, as have the related terms 'genre', 'text type', 'style'. Most researchers agree in using register to refer to situationally defined varieties, as opposed to dialect, which refers to varieties associated with different speaker groups. Register is generally associated by situational variation (Biber and Finegan 1994). However, it is sometimes used as a cover term for all situational varieties and sometimes it is only restricted to occupational varieties. Crystal and Davy (1969:61; in Biber and Finegan 1994:51) describe register as follows;

> Register has been applied to varieties of language in an almost indiscriminate manner, as if it could be usefully applied to situationally distinctive pieces of language of any kind, including, for example, newspaper headlines, church service, sports broadcasts, and advertising.

According to Halliday (1964) register analysis focuses mainly on the identification of statistically significant lexico-grammatical features of a linguistic variety. It is also possible to say that, register is the name given to a variety of language distinguished according to its use. (Strevens, 1964; in Bhatia, 1993).

Indeed it is confusing, to group all these varieties under a single cover term because they differ considerably in their situational characteristics. The term 'style' has been used instead of 'register'. It refers to the variation that occurs in the speech of a single speaker in different situational contexts (Bhatia, 1993). It is typically used to refer to situationally linked variation in the speech of monolingual speakers. Register is used in the same way as style by some writers; it is used to refer to all types of socially conditioned variation. In sociolinguistics, register is used specifically to refer to

situational variation which occurs often when certain topics are discussed by people with shared background knowledge. The term 'genre' has been used by rhetoricians 'instead of register'. To clarify some of the basic concepts like 'dialect', 'register', 'genre' and 'conversational analysis' is important, because they may cause confusion for the researchers. The types of variation like register and genre are relatively global and static, although they deal with the changes in shared patterns of language structure and use, they do not focus on changes as they take place in the course of interaction like conversations. Conversation is a local type of variety and conversation analysis studies language behaviour such as the principles of turn taking and the expression of deference and in this respect they are different from register studies.

> In conversation analysis the identification of attitudes held by speakers with regard to variant forms is important... Language change that is the aspect of conventionalization by which certain variants spread at the expense of others, is intimately connected with speakers' evaluative attitudes, and the analysis of language attitudes in relation to change is correspondingly important (Ferguson 1994:18).

Ferguson (1994:16) describes dialect variation as a kind of difference in people's speech and writing depending on where they come from or where they belong in their society.

> the linguistic difference that correlates with different occasions of use. People speak differently depending on whether they are addressing older or younger, of the same sex or opposite sex, of the same or higher lower status, and so on; whether they are speaking on a formal occasion or causally; whether they are participating in a religious ritual, a sports event, or a court room

The first systematic analysis of register variation began in 1960's and it is still active today. In 1983 Ferguson (1994) characterized the syntactic aspects of the register of a sports announcer talk in American English. The main purpose of the paper is to show how this variety differs from others kind of talk in American English and how to fit this particular register variation into the larger picture of register variation, including the

processes by which structural features of language are adjusted in response to different communicative functions, both in English and more generally. Ferguson (1994:20) summarized the basic assumption of register variation as follows,

> A communication situation that recurs regularly in a society (in terms of participants, setting, communicative functions, and so forth) will tend overtime to develop identifying markers of language structure and language use is different from the language of other communication structures.

People tend to develop similar vocabularies, similar features of intonation, and characteristic bits of syntax and phonology. There might also be formulaic sequences or routines which seem to facilitate speedy communication. Registers usually show unique features of lexicon, collocations, sentence structures and linking devices. Firth used the term 'restricted language' "a language which serves for a circumscribed field of experience or action which has its own grammar and vocabulary" (Beaugrande, 1993:8). Science, technology and politics are regarded as the domains of restricted language.

Genre, on the other hand, is the analysis of different kinds of literary texts, including their structures and uses, and goes back to Aristotle's Poetics and the study of genres has been active from ancient times to the present. In 1970's, genre analysis became the focus of much literary research. In these years, it became clear that genres in the sense of discourse types and message forms exist also in non literary spoken or written texts as in literary texts (Ferguson, 1994). The interest in the analysis of non literary texts has been recent. Ferguson (1994: 21) describes genre as

> A message type that recurs regularly in a community (in terms of semantic content, participants, occasions of use and so on) will tend over time to develop an identifying internal structure, differentiated from other message types in the repertoire of the community.

Halliday (1964) employs 'genre' in a limited sense. According to Halliday (1964) "genre is a single characteristic of a text, it is organizational structure, outside the

linguistic system. In other words, for Halliday, genre is a lower order concept, register the higher order concept, subsuming genre" (Leckie and Tarry, 1995:7). On the contrary, Martin (2000) uses the term genre in a wider sense than that which it is used in literary studies where it refers to literary text types such as poem, fable, short story or novel. Martin (2000: 155) states that "genre is a staged, goal oriented, purposeful activity in which speakers engage as members of our culture". This new definition of genre is important, because it emphasizes that genre is a social process. Furthermore, since it is 'goal oriented', it is a purposeful social process; and it is staged which means that it takes a number of steps to achieve one's purpose (Martin, 2000). Examples of genres are staged activities such as making a dental appointment, buying vegetables, telling a story or writing an essay. For Martin (2000) "register is a semiotic" and a consequence of interpreting register as a semiotic system is that you have to be able to say how the different register choices, once selected, are realised. In his model of language and its connotative semiotics, Martin (2000:156) presents co-tangential circles where language functions as the phonology of register, and both register and language function as the phonology of genre.
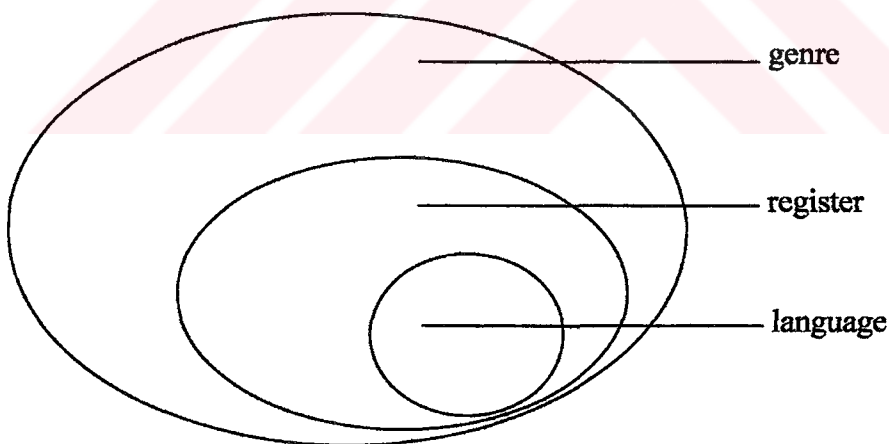
According to Swales (1985:13) genre is;

> a recognizable communicative event characterized by a set of communicative purpose(s) identified and mutually understood by the members of the professional or academic community in which it regularly occurs. Most often it is highly structured and conventionalized with

constraints in allowable comtributions in terms of their intent, positioning, form and functional value. These constraints, however, are often exploited by the expert members of the discourse community to achieve private intentions within the framework of socially recognized purposes.

Just like Martin (2000), Swales(1990) thinks that genre is a brader concept than register because register emphasizes the lexico grammatical patterns rather than context. Register analysis emphasizes that text is a product; however for genre analysis text is a dynamic process. These two terms are also different from each other in terms of their approach towards the text; genre analysis consider text as a whole and studies the complete text within the context, on the other hand, register analysis deals with the parts of the text. For register analysis text is not a complete whole, it deals with its parts or its constituents (Özyıldırım, 1999).

Atkinson and Biber (1994:352) state that register studies involve descriptive analysis of actually occurring discourse aiming to characterize language varieties rather than either the linguistic style of individuals or specific linguistic structures. Furthermore, register studies present formal linguistic characterization of language varieties, characterizations which obtain at various levels of language. In register analysis studies lexical choice itself does not typically mark a register; however, grammatical routines can serve as distinctive register markers (Biber and Finegan, 1994). In order to categorize register studies it is important to provide analytical distinctions (Atkinson and Biber, 1994).

Register studies do not usually include the diachronic component (Ferguson, 1994). Biber, in his work with Hared (1994) analyzed the initial linguistic characteristics of written registers relative to spoken registers and the historical evolution of written registers. Other register studies with a diachronic component are about the cookbook recipe register (Culy, 1987; in Ferguson, 1994). Culy (19871987; in Ferguson, 1994) examined English language cookbooks from the fifteenth century to the present and found that the omission of definite noun phrases increased dramatically over time. Register studies underlined that the distribution of grammatical structures is different across various text types (Grabe, 1984:108). The reason is that where the field of

activity differed there were statistically consistent differences in the frequencies of grammatical patterns.

Register studies can be categorized as the following (Atkinson and Biber; 1994:352)

1. Single register versus register variation studies.
2. Synchronic versus diachronic register studies.
3. Analysis of spontaneous versus elicited discourse
4. Quantitative versus qualitative research methodologies
5. Size and type of textual database
6. Levels of linguistic analyses (e.g. lexical, syntactic, discourse)
7. Mode
8. Topical or disciplinary domains
9. Language/s studied

These categories reveal the ways of the analysis of the variation in a language. The first one indicates that register studies may involve the analyses of only one register or they may include the analysis of several registers and their comparisons. Synchronic versus diachronic register studies indicate that register studies could be carried out using a historical linguistic point of view as well as dealing with the analysis of texts of current era. Atkinson and Biber (1994) state that synchronic single register analysis is the most common approach adopted by researchers. Among these studies, Melinkoff's (1963, in Biber and Ferguson, 1994:353) study dealing with the lexis of legal language and Leech's (1966 in Biber and Ferguson, 1994) treatment of British television and print advertising can be counted. Furthermore, Ferguson's (1983) investigation of radio sports casting is a more recent example. When it comes to studies of professional register like legal language analysis, Danet (1985; in Biber and Ferguson, 1994:354) analyzes the lexical, syntactic and discoursal features of the 'assignment' a British legal document. Finegan (1982; in Biber and Ferguson, 1994:353) examines the functional grammar of wills and Gustaffson (1984; in Biber and Ferguson, 1994:353) studies both parliamentary and congressional acts. Other than legislative language, scientific discourses are an example of professional discourse and there are attempts to characterize it broadly as a synchronic situational variety. Reichman-Adar (1984 in

Biber and Ferguson, 1994) gives a description of spoken 'technical discourse'. Swales (1990), on the other hand, gives a rhetorico-linguistic description of introduction section of research articles and Myers (1991) investigates differences in lexical cohesion across types of scientific writing. The language of media has also been widely treated. Van Dijk (1988) characterizes the prepositional and discourse structure of informational news reports and Wallace (1981) discusses a number of the distinctive features of newspaper language. Language used in schools has also attracted the researchers' attention. Especially there are various classroom language studies like, Sinclair and Coulthard's (1975) discourse structuring of classroom lessons, dealing specifically with Initiation-Response-Evaluation (IRE). Later, Poole (1990) extends the study by including a linguistic description of the IRE. Cazden (1988) characterizes the teacher talk register in terms of politeness.

As can be seen register analysis has various variants. Apart from the studies mentioned above there are other studies closely related with register studies (Atkinson and Biber, 1994:367). These are functional grammar and discourse studies which help to establish the discourse functions of particular linguistic patterns, psycholinguistic studies of discourse structure, ethnographic speech event and speech act analysis, studies of cross cultural discourse and rhetorical text studies. About cross cultural studies, Biber and Conrad (2001:176) state that;

> cross linguistic comparisons of registers are problematic because, similar linguistic features can have quite different functional roles across languages; however, from a comparative register perspective, researchers can first identify the configurations of linguistic features within each language that function to distinguish among registers; then, these parameters of variation can be used for cross linguistic comparison.

2.3.1 General Characteristics of Register Studies

The components of register studies, according to Biber (1994:33), are; situational features, linguistic forms and the analysis of functions and conventions. For some scholars situational characteristics influence the choice of linguistic form, while the

choice of linguistic features in turn helps to create the situation. In short a comprehensive register analysis should provide tools for all three components; analysis of linguistic characteristics of registers, analysis of situational characteristics of registers, and analysis of the functional and conventional associations between linguistic and situational characteristics (Biber, 1994:33).

The functional communicative requirements are purpose, social relations, production constraints etc. Biber (in Biber and Finegan, 1994:34) state that "differences in the relative distributions of common linguistic features typically have functional underpinnings, while the use of specialized register markers is often conventional". In a comprehensive analysis, all salient linguistic characteristics of registers and the relations among the linguistic features themselves should be specified. Furthermore, both register markers, which are distinctive linguistic features, found only in particular registers and all the other core linguistic features like, nouns, pronouns, subordinate clauses should be distinguished carefully. A comprehensive analysis should also permit a complete situational characterization of individual registers as well as precise specification of the similarities and differences among registers (Biber and Finegan 1994).

All types of linguistic features can be distributed in a way that distinguishes among registers. Such features are phonological features (phones and intonation patterns etc.), tense and aspect markers, pronouns and proverbs, questions, nominal forms (nouns, nominalizations, gerunds), passives (by passives, agentless passives), dependent clauses (complement clauses, relative clauses, adverbial subordination), prepositional phrases, adjectives (attributive and predicative), adverbs, lexical classes (hedges, emphatics, discourse particles, stance markers), modals, specialized verb classes (speech act verbs, mental process verbs), reduced forms and discontinuous structures(contractions, *that* deletions), coordination, negation, grammatical devices for structuring information (clefts, extra position), cohesion markers (lexical chains), distribution of given and new information, and speech act types. Biber and Finegan (1994:35) state that;

> A comprehensive linguistic analysis of a register requires consideration of a representative selection of these linguistic features. Such analyses are necessarily quantitative, because register distinctions are based on

differences in the relative distribution of linguistic features, which in turn reflect differences in their communicative purposes and situations.

2.3.2 Co-Occurrence in Register Analyses

Biber (1994) mentioned that the relative distribution of common linguistic features could distinguish among registers, but, in fact, individual features do not make such distinctions, the co occurrence of the linguistic features reveals important differences across registers. For example, nouns, adjectives, and prepositional phrases commonly co occur in academic prose texts, working together to provide a dense integration of information (Biber, Conrad and Reppen 1996). Textual co-occurrence patterns as these are important in characterizing the salient linguistic characteristics of registers. The importance of the notion of linguistic co-occurrence has been emphasized by different linguists. Brown and Fraser (1979:38-39) observe that

> it can be misleading to concentrate on specific, isolated linguistic markers without taking into account systematic variations which involve the co-occurrence of sets of markers. Ervin- Tripp (1972) and Hymes (1974) identify speech styles as varieties that are defined by a shared set of co-occurring linguistic features. Halliday (1985:162) defines a register as a "cluster of associated features having a greater-than-random...tendency to co-occur" (Biber and Finegan, 1994: 35).

Biber (1988), in his multi-dimensional approach to register variation, used the notion of linguistic co-occurrence. In his approach, different co-occurrence patterns are analyzed as dimensions of variation. He uses a quantitative method to determine the frequency of linguistic features. He called his approach multi-dimensional, because no single dimension is adequate in itself to account for the range of linguistic variation in a language and "the co-occurrence patterns underlying dimensions are identified quantitatively rather than on a priory functional basis." (Biber,1988:61).

2.4 THE MULTIDIMENSIONAL APPROACH

The multi dimensional (MD) or multi feature analysis was developed by Biber in 1986 and extended in 1988. Research in this framework analyzes the distribution of linguistic features in a computer corpus to identify text-based association patterns-sets of linguistic features that tend to co-occur in texts (Biber, Conrad and Reppen 1996). Theoretical antecedents to this approach are provided by Ervin Tripp (1972), Hymes (1974), and Brown and Fraser (1979). Brown and Fraser (1979, in Biber, 1988:186) observed that "it can be misleading to concentrate on specific, isolated linguistic markers without taking into account systematic variations which involve the co-occurrence of sets of markers." The grouping of linguistic features is referred to as 'dimension'. The dimensions are identified from a quantitative analysis of the distribution of linguistic features in a representative corpus. Biber (1988) identifies six major dimensions each compromising a distinct set of co-occurring linguistic features. Each dimension defines similarities or differences among registers and registers can be compared with respect to each of these text based association patterns by computing dimension scores (Biber, 1988:93-94). Therefore, MD analysis has two major components; 1) identification of the underlying linguistic parameters, or dimensions, of variation and 2) specification of the linguistic similarities and differences with respect to those dimensions (Biber and Conrad 2001:184). The major purpose of multi-dimensional comparisons is to describe the linguistic characteristics of various registers.

Biber and Conrad (2001:184) summarize the steps in MD approach as the following; the first step in an MD analysis is to obtain a corpus of texts representing a wide range of spoken and written registers. Then, the texts in these corpora are automatically analysed (or tagged) for linguistic features representing several major grammatical and functional characteristics, such as tense and aspect markers, place and time adverbials, pronouns and nominal forms, prepositional phrases, adjectives, adverbs,, lexical classes, modals, passives, dependent clauses, coordination and questions. Next, the frequency of each linguistic feature in each text is counted and the co-occurrence patterns among linguistic features (the dimensions) are identified through statistical computation; i.e. factor analysis which uses frequency counts of linguistic features. "These dimensions are subsequently interpreted in terms of the communicative functions shared by the co-

occurring features. Interpretive labels such as 'Involved versus Informational Production' and 'Narrative versus Non-narrative Concerns' are given (Biber and Conrad, 2001:187). Most dimensions comprise two groups of features; these two groups represent sets of linguistic features that occur in a complementary pattern. That is, when the features in one group occur together frequently in a text, the features in the other group are markedly less frequent in that text and vice versa. A single dimension is not adequate to explain the linguistic variation; therefore, multiple dimensions are employed in the MD approach. According to Biber, 1988:34)

> Multiple Dimensions will typically be required to adequately account for the range of linguistic variation among registers in a language. Dimensions are continuous scales of variation rather than dichotomous poles and the co-occurrence patterns underlying dimensions are identified empirically rather than being proposed on a priori functional basis.

Textual variation is analyzed through microscopic and macroscopic methods. Macroscopic analysis attempt to define the overall dimensions of variation in a language; whereas, microscopic analysis provides a detailed description of the communicative functions of particular linguistic features e.g. person pronouns as markers of personal involvement (Biber 1988). It was mentioned that most register studies are characterized by their detailed analysis of the functions of specific features in representative texts and usually they are based on the qualitative techniques. For example, Thompson (1983; in Biber, 1988:61) studies the functions of detached participle clauses in descriptive texts and Tannen (1982a; in Biber, 1988:61) contrasts the level of immovability in written and spoken narratives. On the other hand, there are a few studies of macroscopic analyses using quantitative statistical techniques. Biber's (1984, 19886a, 1986b, 1987), and Biber and Finnegan's studies (1988b, 1988c) are examples of this type of studies. Furthermore, Caroll (1960; in Biber 1988: 62) examines written prose in English to uncover various dimensions of style and Poole (1973; in Biber, 1988) identifies six underlying dimensions of restricted and elaborated code variation.

Micro and macro approaches to text analysis have complementary strengths and weaknesses. Microscopic analysis is necessary to find out the exact communicative functions of linguistic features; however, it is not able to identify the overall parameters of linguistic variation. Microscopic analysis complements macroscopic analysis in two ways;

1) It identifies the potentially important linguistic features and genre distinctions to be included in a macro-analysis and

2) It provides detailed functional analyses of individual linguistic features, which enable interpretation of the textual dimension in functional terms. Biber (1988:62)

As can be seen, macro-analysis depends on micro analysis for the identification and functional interpretation of potentially important linguistic features, while micro-analysis benefits from the overall theoretical framework provided by macro analyses.

Most early studies of register variation tend to focus on especially English, however, the MD approach has been used to investigate the patterns of register variation in Non-Western languages (Biber and Conrad, 2001:183); Besnier's (1988) analysis of Nukulaelae Tuvaluan; Kim's (1990; in Kim and Biber 1994) analysis of Korean; and Biber and Hared's (1992a, 1992b, 1994) analysis of Somali. Taken together, these studies provide the first comprehensive investigations of register variation in non-western languages. Biber (1995) synthesizes these studies together with the earlier MD analyses of English, to explore cross linguistic patterns of register variation and the possibility of cross linguistic universals governing the patterns of discourse variation across registers.

Among these studies, Kim and Biber (1994) dealt with register variation in Korean. This study is a comparison of written registers to spoken registers along with six dimensions; online interaction versus planned exposition; overt logical cohesion versus implicit logical cohesion; overt expression of personal stance; narrative versus non narrative discourse; online reportage of events and honorification. Biber and Hared's

(1994) study is a synchronic register analysis. It specifically deals with the functional expansion of Somali language. Biber and Hared (1994) analyze the initial linguistic characteristics of written registers relative to spoken registers, the historical evolution of written registers and the range of variability within and among written registers. In this study they used three dimensions of variation; Dimension 1: Structural elaboration: Involvement versus exposition; Dimension 2: Lexical Elaboration: On- Line versus Planned Production; and Dimension 3: Argumentative versus Reported Presentation of Information. Their findings show that written registers are different from pre-existing spoken registers, and written registers greatly expanded the range of variability in Somali. Moreover, written registers became more distinct in the last twenty years and the variability among written registers has been reduced in some respects but expanded in others.

Kessapidu's study (1997), which adopts a critical discourse analysis approach, analyses a corpus of Greek business letters using the MD approach. It is a synchronic register analysis. In the study, specifically persuasion patterns of business letters are analysed. The dimensions used in the study are; direct persuasion, direct versus less direct informational presentation; meta-communicative persuasion versus hedged persuasion; explicit versus implicit presentation of the self in argumentation; and, impersonalized versus personalized persuasion.

In Turkish, MD approach has also been used in some studies. Bayyurt (2000) compares various spoken and written registers in terms of formality. Only one dimension is used in her study; involved versus informational discourse. The samples of the study are three spoken registers, each taken from a talk show program and three written registers; an article from a magazine, introduction of a scientific book and a printed speech.

Yarar (2002) has described the lexico-grammatical and discoursal features of the official language of Turkish. The corpus of the study includes thirty six texts taken from the Official Journal published in 1999. The texts analyzed represent different official text types; namely, legislative texts, juridical texts and administrative texts. There are four dimensions used in this study; 1) interactional versus informational discourse; 2) explicit versus situation dependent reference; 3) overt expression of persuasion; and 4)

abstract discourse. The findings indicate that the Turkish official language is a special language with certain linguistic structures or register markers and discoursal features.

All MD studies describe the linguistic features associated with different registers. Therefore, they provide a deep understanding about language use (Biber, Conrad and Reppen, 1996). In short, it is possible to conclude that each register has its own register markers in other words, lexico-grammatical features and discoursal peculiarities.

CHAPTER 3
ANALYSIS OF DATA

This chapter includes mainly the analysis of the individual linguistic features (micro-analysis) of the register of university lectures with Turkish and English media of instruction comparatively. Moreover, there is a comparison between the registers of Engineering Faculty and Faculty of Letters. Geological department is the representative of Engineering Faculty whereas Psychology department is the representative of the Faculty of Humanities and Letters. Furthermore, the macroscopic analysis including the dimensional analysis takes place in this chapter. The overall discussion will take part in the next chapter.

3.1   THE INDIVIDUAL LINGUISTIC FEATURES

Similar features can have quite different functional roles across languages (Biber, 1988). Researchers can first identify the configurations of linguistic features within each language that function to distinguish among registers. In this study, the following lexico-grammatical features are used in order to analyze the register of university lectures from the field of Psychology and the field of Geological engineering with Turkish and English medium of instruction. These grammatical features are proposed by Biber (1988) and they are determined specifically to analyze university lecture register generally.

1)Yes/No Questions, 2) Or-coordination, 3) Stance adjectives, 4) What if Questions, 5) Time deictic (Time adverbials), 6) Focus Markers, 7) Amplifiers, 8) Down toners, 9) Imperatives, 10) Wh- questions, 11) 1st and 2nd person pronouns, 12) Causative adverbial Clauses, 13) Relative Clauses, 14) And clause/phrase coordination, 15) Common nouns, 16) Complement clauses, 17) Agentless Passives, 18)Present tense, 19)

Predicative adjectives, 20) Possibility modals, 21) Concession conjuncts, 22) Past Tense, 23) Nouns (generic and specific, 24) Conjuncts, 25) Multi-functional Adverbial subordination, 26) Discourse particles, 27) Action verbs, 28) Post position/preposition, 29) Conditional Clause Connectors, 30) Nouns, 31) Possessive Markers, 32) Passive constructions.

3.1.1 Questions

3.1.1.1 Yes/No questions

Both in English and in Turkish, they indicate a concern with interpersonal functions and involvement with the addressee. Biber (1988) sometimes excludes this type of questions, because they could not be accurately identified by automatic analysis in spoken genres. However, since in this study all items are counted by hand, they are included.

In Turkish, the formation of yes-no questions are made by attaching the question particle *-mI, -mU,* again the choice depending on the last vowel of the word preceding the question suffix. Without the use of –mI, question formation is not possible in Turkish unless there is an overt wh-word as will be discussed in the following section. Orthographically the question particle is written as a separate word, not being attached to the preceding word as with other suffixes (TDK Yazım Klavuzu). The person suffix usually follows the question particle except the definite past tense conjugation as can be observed in the following examples.

(1) Gidiyor musun?

(2) Gelecek misin?

(3) Gitmiş miyiz?

(4) Gittin mi?

The position of the question particle is in final position, in which case it has a scope over the whole sentence as can be observed in (5). If one of the elements in the sentence is stressed, then the question particle has to be placed right after that element, as can be seen in examples (6) and (7). In example (6), the speaker already knows that the hearer is going to the sinema, what he/she wants to know is the phrase immediately preceding the question particle; that is, with whom the hearer is going. In the same line, in example (7), the speaker knows that the adressee is going somewhere with Ayşe, what he/she wants to learn is whether it is the sinema that they are going (Taylan & Serin, 2002).

(5) Yarın Ayşe'yle sinemaya gidecek misin?

(6) Yarın Ayşe'yle mi sinemaya gideceksin?

(7) Yarın Ayşe'yle sinemaya mı gideceksin?

3.1.1.2 Wh- questions

As mentioned before in the previous section, if there is an overt wh-particle then the question particle –mI is not used. Wh-words in Turkish are words as *kim, nerede, hangi, nasıl, ne zaman, kimle, kaçta* etc. The position of the wh-particle is fixed; it occupies the same position as the noun phrase in the relative answer, as can be observed from example (8), (9) and (10):

(8) Dün İstanbul'a saat sekizde vardım.

(9) Dün İstanbul'a kaçta vardın?

(10) Hangi gün İstanbul'a vardın?

3.1.1.3 Questions in the Corpus

Table 1. Frequency and Rate of Questions

Dept. of Geological Eng.	TURKISH (n=6093)		ENGLISH (n=5172)	
Yes / No questions	57	(0.94%)	16	(0.31%)
'What if' questions	23	(0.38%)	1	(0.02%)
Wh- questions	74	(1.21%)	21	(0.41%)
Dept. of Psychology	**TURKISH (n=6636)**		**ENGLISH (n=6515)**	
Yes / No questions	24	(0.36%)	9	(0.14%)
'What if' questions	1	(0.02%)	0	(0.00%)
Wh- questions	14	(0.21%)	14	(0.21%)
Total	**TURKISH (n=12729)**		**ENGLISH (n=11687)**	
	193	(1.52%)	61	(0.52%)

In the Turkish corpus, which constitutes the lectures from the departments of Geological engineering and Psychology there are totally 193 (1.52 %) questions; there are 81 yes no questions , 24 what if questions and 88 Wh- questions. When it comes to the lectures in English, there are 25 yes/no questions, only one what if question and 35 Wh-questions. Totally there are 61 questions (0.52%).

The questions in lectures could be identified as follows:

[Ex. 1]   Buraya kadar sorunuz var mı? (H.U. Dept of Geological Engineering)

[Ex. 2]   Bu tabu değişmeyecek mi? (H.U. Dept of Psychology)

[Ex. 3]   Why do you have this feeling? (METU Dept. of Psychology)

[Ex. 4]   Kumlu birimde niye ilerlemiyor? (H.U. Dept of Geological Engineering)

[Ex. 5]   O halde şimdi ölçeceğimiz nedir? (H.U. Dept of Geological Engineering)

[Ex. 6]   What if the CP values are not provided? (METU Dept of Geological Engineering)

3.1.2 Coordination

Biber (1988:245) states that phrase and clause coordination have complementary functions. *And* as a clause coordinator is a general purpose connective that can mark many different logical relations between two clauses. Such logical relations may be temporal or causal. *And* as a phrase coordinator, on the other hand, has an integrative function and is used for idea unit expansion (Chafe, 1982, 1985; Chafe and Danielewicz 1986 in Biber, 1988:245). In Turkish the major form of and coordination is '*ve*'.Csato and Johanson (1988:227) state that in Turkish the post position '*ile*' (with) is also employed (e.g onunla ben) as can be seen in this example, in Turkish '*and*' relations is expressed by '*ile*' attached to the first element. Or coordination in Turkish is expressed by 'ya da' *(ve)yahut* (Csato and Johanson 1998; Kornfilt 1997, Lewis 1967).

3.1.2.1 Coordination in the Corpus

Table 2. Frequency and Rate of Coordinations

Dept. of Geological Eng.	TURKISH (n=6093)		ENGLISH (n=5172)	
And clause / phrase coordination	17	(0.28%)	59	(1.14%)
Or - coordination	17	(0.28%)	8	(0.15%)
Dept. of Psychology	**TURKISH (n=6636)**		**ENGLISH (n=6515)**	
And clause / phrase coordination	60	(0.90%)	105	(1.61%)
Or - coordination	12	(0.18%)	17	(0.26%)
Total	**TURKISH (n=12729)**		**ENGLISH (n=11687)**	
	106	**(0.83%)**	**189**	**(1.62%)**

In the analysis, it is found that out of 12.729 words in the Turkish corpus only 106 (0.83) words are coordinators. In the English corpus of 11687 words, there are 189 (1.62) coordinators. What is important is that in English, the 'and' coordination is used more frequently than in Turkish; (164).

Some examples of *and* coordination from the corpus.

[Ex. 7]   We were talking about birth order and we have seen the first child. (METU Dept.of. Psychology).

[Ex. 8]   ... dönemin karakteristik duygu, düşünce ve duygularına geri dönüştür. (H.U. Dept of Psychology)

[Ex. 9]   ...I don't know which way is better, whether having the same teacher for a long time *or* separate teachers at each grade? (METU Dept. of Psychology)

[Ex. 10]   ...örselenmeyi önlemek için Shelby tüpü ya da bishop kum örnekleyicisi kullanılır. (METU Dept.of Geological Engineering)

3.1.3 Adjectives

Biber (1988:237) states that adjectives expand and elaborate information presented in the text. Adjectives are distinguished as attributive and predicative adjectives. Predicative adjectives are used for making stance (as heads of 'that' or 'to' complements. The present analysis emphasizes both stance adjectives and predicative. Predicative adjectives are formed by BE +ADJ +any word (e.g. the horse is big). In Turkish adjectives are considered as a nominal category like nouns and pronouns. In Turkish; "a particular lexical item is classified as adjective if it is dominantly used attributively, and is used with comparative and superlative markers" (Csato and Johanson 1988:208). An example of stance adjectives in Turkish is, *"Bu soru güzel"* (This is a good question). In Turkish, adjectives premodify noun (e.g. güzel kız; beautiful girl).

3.1.3.1 Adjectives in the Corpus

Table 3. Frequency and Rate of Adjectives

Dept. of Geological Eng.	TURKISH (n=6093)		ENGLISH (n=5172)	
Stance adjectives	10	(0.16%)	6	(0.12%)
Predicative adjectives	18	(0.30%)	7	(0.14%)
Dept. of Psychology	**TURKISH (n=6636)**		**ENGLISH (n=6515)**	
Stance adjectives	15	(0.23%)	59	(0.91%)
Predicative adjectives	4	(0.06%)	45	(0.69%)
Total	**TURKISH (n=12729)**		**ENGLISH (n=11687)**	
	47	(0.37%)	117	(1.00%)

As can be observed from the table, the use of adjectives depends on the subject matter rather than the language used in the lectures. In the Department of Psychology, when the medium of instruction is English there are 104 adjectives and in the Department of Geological Engineering, again, in English medium instruction there are only 13 adjectives. When the total amount is considered in the Turkish corpus there are 47 adjectives (0.37%) whereas in the English corpus, there are 117 (1.00%) adjectives.

In the corpus, some examples of adjectives are; *effective, important, crucial, brief, rapid, adequate, enough, güzel, hassas, farklı, garip, çok basit, önemli, yüksek, mükemmel* etc.

[Ex. 11]   The *most pampered* one in the familiy is in fact, is the *youngest* child. (METU Dept. Of Psychology)

[Ex. 12]   the solution is *simple*. (METU Dept. Of Geological Engineering)

[Ex. 13]   determenistik bakış açısını *çok iyi* yansıtmaktadır. (H.U. Dept.of Psychology)

[Ex. 14]   This period is *crucial* for Adler (METU Dept. Of Psychology)

3.1.4 Time Adverbials

Place and time adverbials could be defined as linguistic devices used for indicating place and time in sentences in which they occur. Time adverbials, especially, are linguistic devices used for indicating the temporal relations involved in a text. In English these are; *afterwards, again, earlier, early, eventually, formerly, immediately, initially, instantly, late, lately, later, momentarily, now, nowadays, once originally, presently, previously, recently, shortly, simultaneously, soon, subsequently, today, tomorrow, tonight, yesterday* (Quirk et al.; 1985:526ff). In Turkish, time adverbials may occur in the absolute, locative and dative forms (Lewis, 1967). Some counterparts of time adverbials in Turkish are; *'önce', 'sonra', 'yarın', 'dün', 'geçen hafta', 'uzun zamandır', 'kez', 'ertesi', 'akşamüstü', 'ilkbaharda', 'bayramda', '1453'te, 'hemen', 'şimdiden', 'eskiden', 'ilkin', 'demin', 'sonunda', 'saatlerce', 'akşama doğru'* etc. (Erguvanlı 1984; Lewis 1967, Underhill, 1987).

3.1.4.1 Time adverbials in the Corpus

Table 4. Frequency and Rate of Time Adverbials

Dept. of Geological Eng.	TURKISH (n=6093)	ENGLISH (n=5172)
Time deictic / adverbials	30 (0.49%)	30 (0.58%)
Dept. of Psychology	**TURKISH (n=6636)**	**ENGLISH (n=6515)**
Time deictic / adverbials	13 (0.20%)	21 (0.32%)
Total	**TURKISH (n=12729)**	**ENGLISH (n=11687)**
	43 (0.34%)	51 (0.44%)

The use of time adverbials is nearly the same in both lectures with Turkish medium of instruction and with English medium of instruction. There are totally 43 adverbials employed in the Turkish corpus (0.34) and 51 (0.44) in the English corpus.

Some examples of time adverbials are;

[Ex. 15] *in the second hour, we will deal with the enthalpy* (METU. Dept. of Geological Engineering)

[Ex. 16] *at the begininng of the hour,* I told you that...(METU Dept. of Psychology)

[Ex. 17] *önceden bahsettiğimiz* gibi...(HU Dept. of Geological Engineering)

[Ex. 18] Freud 1856'da Moravia'da doğdu. (HU Dept of Psychology Engineering)

3.1.5 Focus Markers

Focus in English is singling out some particular element of a sentence or an utterance as representing the most important new information (Trask, 1999: 95). For example, "Susie needs a holiday", here it is not obvious that attention is being drawn to any particular part of the utterance. However, "SUSIE needs a holiday" means the one who needs a holiday is Susie not somebody else and we say that Susie is in focus. In spoken English it is possible to put a particular element in focus by stressing it. But both spoken and written English have another device for placing an element in focus, the use of any of several types of cleft, eg. "It's Susie who needs a holiday" (placing Susie in focus) or "What Susie needs is a holiday" (placing holiday in focus. In English, focus markers are; *also, even, only, too* etc.

In Turkish, any element can be focused simply by placing it directly before the verb; furthermore, '*dE'* and '*bile'* are focus markers in Turkish. In spoken discourse it is also possible to put an element in focus by stressing it.

3.1.5.1 Focus Markers in the Corpus

Table 5. Frequency and Rate of Focus Markers

Dept. of Geological Eng.	TURKISH (n=6093)	ENGLISH (n=5172)
Focus Markers	33 (0.54%)	4 (0.08%)
Dept. of Psychology	**TURKISH (n=6636)**	**ENGLISH (n=6515)**
Focus Markers	46 (0.69%)	13 (0.20%)
Total	**TURKISH (n=12729)**	**ENGLISH (n=11687)**
	79 (0.62%)	17 (0.15%)

It can be clearly seen that focus markers are more frequently employed in the lectures with Turkish medium of instruction (79) then in the lectures with English medium of instruction (17).

Some examples from the corpus are; *also, even, -de, -da, bile, hatta, mI,*

3.1.6 Lexical classes

3.1.6.1 Amplifiers

Amplifiers indicate the degree of certainty towards a proposition (Biber, 1988). Quirk et al. (1987:590) define amplifiers as the words that boost the force of the verb. Chafe (1985, in Biber 1988) mentions that amplifiers indicate the reliability of propositions. These adverbs do not contribute to the informational content of texts, but they indicate the producer's subjective attitudes towards the informational content of the text. In English, the amplifiers are; *absolutely, completely, entirely, extremely, fully, greatly, highly, intensely, perfectly, totally, very.* Amplifiers are similar in Turkish and they have the same function. Amplifiers in Turkish are *tamamen, oldukça, büyük ölçüde* (Atabay, Kutluk ve Özel 1983).

3.1.6.1.1 Amplifiers in the Corpus

[Ex. 19] This situation is *very* similar to Adler, in terms of inferiority complex. (METU Dept. of Psychology)

[Ex. 20] ...the patient, not the therapist who is *ultimately* responsible for curing himself... (METU Dept. of Psychology)

[Ex. 21] Şu eşitliğe *iyice* bakın bakalım (HU Dept. of Geological Engineering)

[Ex. 22] Bu formülde sayıları yerine koymak *oldukça* basit. (HU Dept. of Geological Engineering)

3.1.6.2 Downtoners

Downtoners are the opposite of amplifiers; they have a lowering effect on the force of the verb (Quirk et al. 1985). Like amplifiers, downtoners do not have contribution to the informational content of the texts. Biber (1988:240) argues that in conversations the down toners are quite rare, in contrast in academic texts there is a wide range of common downtoners. Downtoners in English are, *almost, barely, hardly, nearly, partially, partly, somewhat* (Biber 1988:240).

Downtoners in Turkish are 'hemen *hemen*', '*neredeyse*', '*kısmen*', '*aşağı yukarı*', '*şöyle böyle*' (Atabay, Kutluk and Özel 1983:112).

3.1.6.2.1 Downtoners in the Corpus

[Ex. 23] Freud'un bu inancı *kısmen* doğrudur. (HU Psychology Dept.)

[Ex. 24] Bu alanda sürtünme *hemen hemen* yok gibidir. (HU Dept. of Geological Engineering)

[Ex. 25] entrophy can *also* be used... (METU Dept. of Geological Engineering)

[Ex. 26] The result is *somewhat* true... (METU Dept. of Geological Engineering)

[Ex. 27]   Adler also used, *quite rarely* though, hypnosis. (METU Dept. of Psychology)

3.1.6.3 Conjuncts

Conjuncts explicitly mark logical relations between clauses, and as such they are important in discourse with a highly informational focus. Quirk et al. (1985:634-36) list the following functional classes of conjuncts; listing, summative, appositive, resultive, inferential, contrastive, and transitional. Biber (1986a) finds that conjuncts occur frequently in informational genres such as academic prose, official documents and professional letters. Furthermore it is also stated that concessive conjuncts are more common in writing than speech. The list of conjuncts in English are: *alternatively, altogether, consequently, conversely, eg, else, furthermore, hence, however, i.e. instead, likewise, moreover, namely, nevertheless, nonetheless, notwithstanding, otherwise, rather, similarly, therefore, thus, viz.*

In Turkish, conjuncts are *üstelik, ayrıca, bir de, örneğin, tersine, benzer olarak, sonuçta, sonuç olarak, kısaca, bir de, böylece, nitekim* etc.

3.1.6.4 Discourse Particles

Discourse markers are used to maintain conversational coherence (Schriffin, 1987). Fraser (1999: 931) states that these lexical expressions have been studied under various labels, including discourse markers, discourse connectives, discourse operators, pragmatic connectives, sentence connectives, and cue phrases. Although there is an agreement that they are expressions which relate to discourse segments, there is no agreement on how they are to be defined or how they function. Chafe (1985) describes their role as 'monitoring the information flaw in involved discourse'. They are used mostly in conversational genres. Biber (1988:241) list them as, *well, now, anyway, anyhow, anyways*. Fraser (1999: 931) states that "they have a core meaning, which is procedural, not conceptual, and their more specific interpretation is negotiated by the context, both linguistic and conceptual". '*Well*', for example, as a discourse marker,

refers backwards to some topics is already shared knowledge among participants (Labov and Fanshel, 1977:156; in Fraser, 1999: 932). Discourse markers have the role of relating the current utterance with a larger discourse. Schiffrin (1987) lists them as follows; *and, because, but, I mean, now, oh, or, so, then, well, and y'know.* Schiffrin (1987) suggests that discourse markers do not easily fit into a linguistic class. She (1987:314; in Fraser, 932) then suggests what constitutes a discourse marker as follows:

It has to be syntactically detachable from a sentence.

It has to be commonly used in initial position of an utterance.

It has to have a range of prosodic counters.

It has to be able to operate at both local and global levels of discourse

It has to be able to operate on different planes of discourse.

Syntactically, discourse markers do not constitute a separate syntactic category. Three sources of discourse markers are, conjunctions, adverbs and prepositional phrases as well as a few idioms like 'still' and 'all and all'.

In Turkish, discourse markers such as *'bir de'*,(also), *'fakat'*(but), *'neyse'*(whatever) function as explicit indicators of the structure of a discourse (Yöndem; 2000). In Turkish, discourse markers cause a pause and most of the time they are considered to be clue for topic change. Turkish is quite different than English in many ways; especially it allows variation in word order; therefore, Yöndem (2000:414) states that the place of a discourse marker is important in determining the meaning of the whole sentence. They may take place at the beginning of the sentence as a temporal sentence adjunct; like *'bir sabah'* (one morning), *'o gece'* (that night) or within the sentence.

3.1.6.4.1 Discourse Particles in the Corpus

[Ex. 28] *Okay then,* the risky situation is being the only child because there is a high probability of a being a problem child. (METU Dept. of Psychology)

[Ex. 29] but *you know* if we want to stop that misbehavior permanently we are suppose to child's style of life. (METU Dept. of Psychology)

[Ex. 30] *Şimdi* kil zeminlere geçiyoruz arkadaşlar... (HU Dept. of Geological Engineering)

[Ex. 31] *Gelin* önce ilkini hesaplayalım...(HU Dept. of Geological Engineering)

[Ex. 32] *bir de* taşıma gücü önemlidir; *yani* üzerine konduğu zemin acaba bu yükleri taşır mı? (HU Dept. of Geological Engineering)

3.1.6.5 Lexical Classes in the Corpus

Table 6. Frequency and Rate of Lexical Classes

Dept. of Geological Eng.	TURKISH (n=6093)		ENGLISH (n=5172)	
Amplifiers	27	(0.44%)	4	(0.08%)
Downtoners	12	(0.20%)	4	(0.08%)
Conjuncts	56	(0.92%)	76	(1.47%)
Discourse particles	60	(0.98%)	34	(0.66%)
Dept. of Psychology	**TURKISH (n=6636)**		**ENGLISH (n=6515)**	
Amplifiers	23	(0.35%)	17	(0.26%)
Downtoners	0	(0.00%)	3	(0.05%)
Conjuncts	31	(0.47%)	63	(0.97%)
Discourse particles	25	(0.38%)	20	(0.31%)
Total	**TURKISH (n=12729)**		**ENGLISH (n=11687)**	
	234	**(1.84%)**	**221**	**(1.89%)**

This table indicates that among the lexical classes, the most frequently used category is conjuncts in both Turkish and English medium lectures. Downtoners and amplifiers are

remarkably low (29) in the English corpus because the lecturers are non-native speakers and they might have difficulty in using them. When it comes to discourse particles, just like downtoners and amplifiers they are more frequent in the Turkish corpus; furthermore in the English corpus there is a repetition of some discourse markers like *okay* or *okay then*.

3.1.7 Imperatives

An imperative sentence is defined as a sentence which:

- has no surface subject (apart from occasional uses of you, as in ('You try this')

- has either a main verb or emphatic do ('Do be careful') in the base form and without any modals. (Quirk et al.,1985: 24).

In this study all instances of *let* were taken to be imperatives in both first person contexts ('let us examine...) and in third person ones ('Let x represent'). Some examples of imperatives are, see, consider, note (that) +clause, let A, let us+VP etc.

In Turkish, the imperative form is restricted to second person singular (sen) and second person plural (siz). The formation of imperative is morphologically relatively simple. For second person singular (sen) reference, the bare form of the verb root is used. Example: *Gel, Yat, Git, Çalış*. For second person plural (siz), one of the suffixes *–In, ,* is used, the choice of which depends on the final vowel of the verb root. If the verb ends with a vowel, the buffer sound [y] is inserted between the root and the imperative suffix. This form can also be used as a more formal and polite form when addressing second person singular. There is yet another form of the imperative, the use of which is restricted. It is only used in very formal contexts or when the speaker is addressing a large audience, the suffix for this form is *-InIz, -UnUz* or the choice of which depends on vowel harmony.

(1) (Sen) Gel   Uyu

(2) (Siz) Gel-in   Uyu-y-un

(3) (Siz) Gel-iniz   Uyu-y-unuz

The negative of the imperative is formed by attaching the negative suffix *–me* or *-ma* immediately after the verb root and before the imperative suffix: git-*me*, *git-me-yin*, *git-me-yiniz*. There is no question form.

3.1.7.1 Optative

Optative is used to make a suggestion. The sufixes for the optative is *–ElIm* depending on properties of the the last vowel of the root. If the final sound of the verb root is a vowel, then the buffer [y] is used before attaching the optative suffix.

(4) Çalış-alım

(5) Ara-yalım

The negative is formed by attaching the negative suffix *–mE* immediately after the verb root and before the optative suffix: *git-me-yelim, kal-ma-yalım.*

The question form is also possible for the optative form, by attaching the yes-no question particle –mI.: *Çalış-ma-yalım mı?, Ara-ma-yalım mı?*

3.1.7.2 Imperatives in the Corpus

Some examples from the corpus are;

> [Ex. 33] *calculate the standart enthalpy...* (METU Dept. of Geological Engineering)

[Ex. 34] (ex 33) *let me write down the formula...* (METU Dept. of Geological Engineering)

[Ex. 35] *speak in English...* (METU Dept. of Psychology)

[Ex. 36] *kendin bul sonucunu...* (HU. Dept. of Geological Engineering)

[Ex. 37] *presiyometre deneyini hatırlayın.* (HU. Dept. of Geological Engineering)

Table 7. Frequency and Rate of Imperatives

Dept. of Geological Eng.	TURKISH (n=6093)	ENGLISH (n=5172)
Imperatives	29 (0.48%)	23 (0.44%)
Dept. of Psychology	**TURKISH (n=6636)**	**ENGLISH (n=6515)**
Imperatives	8 (0.12%)	3 (0.05%)
Total	**TURKISH (n=12729)**	**ENGLISH (n=11687)**
	37 (0.29%)	26 (0.22%)

In this table, the distribution and the rate of imperatives are given. It is possible to argue that both in English and Turkish lectures, imperatives do not have any significant communicative roles. There are totally 37 imperatives in the Turkish and 26 in the English corpus.

3.1.8 Pronouns

Pronouns are defined as words, which are used instead of a noun or a noun phrase. Pronouns could be divided into two major categories: 1) personal pronouns; and 2) impersonal pronouns. In this study, only personal pronouns, especially, first and second personal pronouns are emphasized. Major forms of personal pronouns are; first, second and third person singular/plural pronouns. In English, first person pronouns are *I, me, we, us my, our, myself, ourselves.* Biber (1988:225) states that "first person pronouns have been treated as markers of ego involvement in a text. They indicate an interpersonal focus and generally involve style". Second person pronouns are; *you,*

your, yourself, yourselves. They require a specific addressee and indicate a high degree of involvement with that addressee.

Personal pronouns in Turkish are called free pronouns by Kornfilt (1997). In Turkish first person pronuns are singular, '*ben*', plural '*biz*' Second person singular is '*sen*' plural 'siz'. While analyzing first and second person pronouns in Turkish it is also important to take into consideration the case markers. Nominative '*ben*', accusative '*beni*', genitive 'benim', dative '*bana*', locative '*bende*' ablative 'benden'. When it comes to second person pronouns '*sen*' is nominative, '*seni*' accusative, '*senin*' genitive, '*sana*' dative and '*sende*' locative and '*senden*' ablative. Furthermore, Turkish is known as a pro-drop language however, pronouns are deleted but then recovered from the inflection of the verb.

'geliyorum' (I'm coming) (first person) or

'geldin' (You've come), (second person).

3.1.8.1 Pronouns in the Corpus

[Ex. 38] *We*'ll see the intervention programs based on Jung's theory. (METU Dept. of Psychology)

[Ex. 39] *You* can figure out how the child feels in that situation. (METU Dept. of Psychology)

[Ex. 40] bu sonuç *sizi* şaşırtmasın... (HU Dept of Geological Engineering)

[Ex. 41] bu tür zeminler için değerlendirmeleri*miz* neler olacak ona baka*lım*... (HU Dept of Geological Engineering)

Table 8. Frequency and Rate of Pronouns

Dept. of Geological Eng.	TURKISH (n=6093)		ENGLISH (n=5172)	
1st and 2nd person pronouns	308	(5.05%)	115	(2.22%)
Dept. of Psychology	**TURKISH (n=6636)**		**ENGLISH (n=6515)**	
1st and 2nd person pronouns	58	(0.87%)	109	(1.67%)
Total	**TURKISH (n=12729)**		**ENGLISH (n=11687)**	
	366	**(2.88%)**	**224**	**(1.92%)**

When the medium of instruction is English in lectures, the number of pronouns is nearly the same; 115 and 109 and totally pronouns make up1.92% of the English corpus. In Turkish corpus pronouns are employed frequently; they constitute 2.88% of Turkish lecture register. In the department of Geological engineering where the medium of instruction is Turkish, there are 308 personal pronouns. This may indicate that there is a high degree of involvement in the lectures. Totally there are 366 (2.88%) personal pronouns in the Turkish lecture register. In English, there are totally 224 (1.92%) personal pronouns.

3.1.9 Subordination

Subordination is one kind of embedding which occurs when one clause is made a constituent of another clause (Quirk, 1987:44). Subordination involves the linking of units of the same rank. However, the subordinated units form a hierarchy, the subordinate unit being a constituent of the super ordinate unit (Quirk et al., 1984:918). Use of subordination in texts is important because, it is an indicator of structural complexity (Biber, 1988). Sentences having subordinate clauses are called complex sentences. Types of subordination are; relative clauses, adverbial clauses and complement clauses (Biber, 1988, Kornfilt, 1997).

3.1.9.1 Relative Clauses

Among these structures relative clauses are used to convey information; therefore, they are important for academic texts whose aim is to provide information. Relative clauses are restrictive or non restrictive modifiers of a noun or a noun phrase (Keenan, 1985, in Diesel 2001:435). Relative clauses are devices for providing information about the nouns. Relative clauses are the indicator of explicit and elaborated reference in planned discourse. Biber and Conrad (2001:179) state that "Most grammatical features are distributed in very different ways across registers" and it was found out that among the various types of dependent clause in English, relative clauses are many times more common in academic texts than in conversation (Biber and Conrad 2001).

In Turkish, relative clauses are in the form of participle constructions. Haig (1998:38) states that "Participles are verbal nominals which may occur in attributive function". Participle suffixes that form the Turkish relative constructions are as follows: -En, -EcEk, -DIk, -mIş, etc. (Erguvanlı 1984, Erguvanlı Taylan 1994, Haig 1998).

The combination of the two of the participle suffixes is also used to form the relative clauses in Turkish such as *–mIş –En, -mEktE –En, EcEk –En ve -mIş –DIk* (Akerson and Ozil 1998).

3.1.9.1.1 Relative Clauses in the Corpus

Some examples of relative clauses are;

[Ex. 42] specific heat *which* is defined as the heat required to increase one glam by one degree Celsius. (METU Geological Engineering)

[Ex. 43] İmza atmay*an* kimse var mı? (HU Dept of Psychology)

[Ex. 44] elde ed*eceği*m değer önemlidir. (HU Dept. Of Geological Engineering)

[Ex. 45] MTA 'da çalı*ştığı*mız dönem... (HU Dept. Of Geological Engineering)

[Ex. 46] sür*mekte* olan kuyu açma çalışmalarını olumsuz etkilemektedir. (HU Dept. Of Geological Engineering)

3.1.9.2 Adverbial Clauses

Adverbial clauses are also important for academic texts because they indicate informational relations in a text. Furthermore, they require an interaction among the discourse participants since they express the interactional propositions like reasons, purposes, conditions or temporal settings (Biber, Conrad and Reppen 1988:140). Adverbial clauses are adjuncts functioning as adverbial or ad-sentential modifiers (Thompson and Longacre 1985:171). Adverbial clause constructions are important for indicating informational relations in texts (Biber, 1988). The subclasses of adverbial clauses are; causative, concessive, conditional and purpose clauses (Diessel, 2001).

Causative adverbial clauses indicate a reason or a cause of the action. In discourse, causative clauses are important because they are used to explain or to justify, to reason about causes and conditions. Biber, Conrad and Reppen (1998: 117) state that "a register which is more concerned with the interaction among participants includes a concern with reasons and causes for actions, often conveyed with causative adverbials". In English, *'because'* is the only subordinator to function as a causative adverbial. Other forms, such as, *'as' 'for'*, and 'since' can have a range of functions, including causative (Biber, 1988). In spoken discourse 'because' is used more than the other forms. In Turkish, the word *'çünkü'* and suffixes like, *-DIğI için/diye, -DEn* are used as causative adverbial subordinators.

Concessive adverbial subordinators in English are *although and though*. Concessive adverbials can be used for framing purposes or to introduce background information (Biber, 1988: 236). In Turkish, concessive adverbial clauses are formed with the conditional suffix

–sE and a particle such as *–DA* or *bile and rağmen* (Kornfilt, 1997).

Conditional adverbial clauses are mainly used for discourse framing (Biber, 1988). 'If' and '*unless*' are the conditional adverbial subordinators in English. A conditional sentence is made up of two clauses; an initial or antecedent clause, and a final or a consequent clause (Kornfilt, 1997). In Turkish, conditional adverbial clauses are formed by the suffix *–sE* that is attached to the verb stem of the antecedent clause (Kornfilt, 1997).

There is one more category in adverbial clauses; these are called adverbial subordinators having multiple functions or multi-functional adverbial clauses. In English these are; since, *while, whilst, whereupon, whereas, whereby, such that, so that xxx, such that xxx, inasmuchas, forasmuch as, insofar as, insomuch as, as long as, as soon as*. In Turkish, multi functional adverbial clauses are; *-ErEk,* (to describe the manner of an action and to express consecutive events) -Ip, (expresses simultaneous events) *-IrkEn,* (indicates the duration of an action) -mE, -mEk (used in purpose adverbial clauses), *-mEksIzIn, -mEdEn, -DIkçA* (Csato and Johanson, 1998; Özsoy, 1999).

3.1.9.2.1 Adverbial Clauses in the Corpus

Examples of causative adverbial clauses are;

[Ex. 47]   … değerlerin bilin*mesi diye* birşey yok.

[Ex. 48]   burada sürtünmenin azalması *için* yapılacak olan

Examples of concessive adverbial clauses are;

[Ex. 49]   Sürtünme devam et*se bile* artık bir önemi olmayacaktır.

[Ex. 50]   Bilinç bu travmadan etkilenmesine *rağmen* etkilenmemiş gibi yapıp bunu bilinçaltına iter.

Examples of conditional adverbial clauses

[Ex. 51]   ...*if* peers help each other it will be more useful

[Ex. 52]   Kohezyonsuz bir zemin*se* ne olur ?

[Ex. 53] Formülde yerine koyup, hesaplar*sak*

[Ex. 54] *Eğer* çapı B olan daire şeklinde bir temel ile uğraşıyor*sanız*

Examples of multi-functional adverbial clauses

[Ex. 55] Mayerof diyor ki burada Henson'ı kullan*ıp* bulursunuz.

[Ex. 56] Kare sömel olabil*me*si için ne yapacağınızı bilmeniz gerek.

[Ex. 57] Rüyadan çok rüya sırasında neler hissetiğinizi sor*arak* duygularınızı anlamaya çalışıyor.

[Ex. 58] Çizdiğimiz şekle bak*arken*, bir taraftan da hesaplamalarınızı yapın.

[Ex. 59] You need to know the early collections like parents' attitude, family environment *so that* you can assess the client's style of life.

[Ex. 60] Common traits are those that we all have to some degree, they are more general *while* unique traits are more specific to particular individuals.

3.1.9.3 Complement Clauses

Complement clauses often mark the stance of the speaker or writer; they function as core arguments of a predicate (Noonan, 1985 in Diessel 20001:435). They can not be omitted because they are usually the obligatory constituents of the main clause and can not be omitted. Ochs, in Biber, 1988:230) describes complementation as a relatively complex construction used to a greater extent in planned than unplanned discourse. On the contrary Biber (1986a) finds that *'that'* complements co-occur frequently with interactive features such as first and second person pronouns and questions and that all of these features are more common in spoken discourse.

In Turkish, complement clauses are formed by the nominalization of the embedded verb (Özsoy, 1999:55) by means of suffixes as *–EcEk, -DIk, -mEk, and mE,* (Csato and Johanson, 1998; Erguvanlı Taylan, 1994; Özsoy, 1999). Complement clauses have two types, complement clauses based on non-finite form in –Iş and Wh- complement clauses including phrases such as *'ne', 'kim', 'ne zaman', 'nasıl', 'niye'* etc. Quirk et.al (1987:1051) state that "subordinate wh interrogative clauses resemble wh questions

semantically in that they leave a gap of unknown information represented by the wh element". *That* complements and WH complements are different in that by that clause the known information is expressed whereas the unknown information is expressed by Wh clause (Erguvanlı 1984).

3.1.9.3.1 Complement Clauses in the Corpus

[Ex. 61]   demek *ki* deneyi *hangi* derinlikte *ne* tür yapacağım, bunları önceden bil*mek* gerekiyor. (HU Dept. Of Geological Engineering)

[Ex. 62]   ...bunları göz önüne alarak hangi eşitliği kullan*acağ*ımızı siz söyleyin. (HU Dept. Of Geological Engineering)

[Ex. 63]   Çalıştığımız projede hangi güvenlik katsayısını benimsiyorsanız onun dikkate alın*ma*sı gerekir. (HU Dept. of Geological Engineering)

[Ex. 64]   It means *that* we'll find out which way the reaction goes... (METU Dept.of Geological Engineering

3.1.9.4 Subordination Clauses in the Corpus

Table 9. Frequency and Rate of Subordinations

Dept. of Geological Eng.	TURKISH (n=6093)		ENGLISH (n=5172)	
Relative Clauses	81	(1.33%)	25	(0.48%)
Complement clauses	95	(1.56%)	45	(0.87%)
Adverbial Clauses (Causative + Concessive + Conditional + Multifunctional Adverbial Subordinators)	104	(1.71%)	27	(0.52%)
Dept. of Psychology	**TURKISH (n=6636)**		**ENGLISH (n=6515)**	
Relative Clauses	143	(2.15%)	29	(0.45%)
Complement clauses	61	(0.92%)	71	(1.09%)
Adverbial Clauses (Causative + Concessive + Conditional + Multifunctional Adverbial Subordinators)	135	(2.03%)	66	(1.01%)
Total	**TURKISH (n=12729)**		**ENGLISH (n=11687)**	
	619	(4.86%)	263	(2.25%)

From this table it may be argued that lectures with Turkish medium of instruction have complex structures. The total number of subordinating devices is 619 and they constitute the 4.86% of the whole Turkish corpus. On the other hand, the number of subordinating devices in the English corpus is 263 (2.25 %). The table shows that among subordination clauses the most frequently used form in the Turkish corpus is relative clauses (224) and adverbial clauses (247). Complement clauses are found to be the less used form of subordination in the sample (156). In the English corpus, on the other hand, the most frequently used form of subordination is complement clauses.

3.1.10 Nouns

Counting nouns in a text provides an overall nominal assessment of a text. Biber (1988:227) argues that "a high nominal content in a text indicates a high (abstract) informational focus..." A noun is a word that identifies the name of a person, place or

thing. A noun may be common or proper. A common noun is a word, which identifies any person, place or thing. A proper noun identifies a specific person, place or thing such as a person's name, a specific place or a specific thing. A noun may be concrete or abstract. A concrete noun identifies things, which have mass and can be seen or held such as *man, automobile*, or *food*. An abstract noun is a word, which identifies things, which have no mass, nor can be seen or held. These nouns identify a concept, a feeling, or an idea such as hate, passion or peace.

In Turkish, several suffixes are used to generate nouns from other nouns, verbs and adjectives; these are, *-mEk, -IL, -lık,-cI, -mE, -Iş, -gI, -Aç* etc.

3.1.10.1 Nouns in the Corpus

There are both common nouns and specific nouns in the corpus; some examples of common nouns are *arkadaşlar, eşitlikler, faktörler, tesisler, bilinmeyenler, araştırmalar, boyutlar, inşaatçılar, eğri, temel, derinlik, mühendis, proje, family, youngest child, siblings, dreams, love, social interaction, behaviour, emotions* etc.

Some examples of specific nouns are; *Adler, Jung, inferiority complex, neurosis, identity crisis, grandömetre, süreksizlik, tek eksenli sıkışma dayanımı, zımbalama davranışı* etc.

Table 10. Frequency and Rate of Nouns

Dept. of Geological Eng.	TURKISH (n=6093)	ENGLISH (n=5172)
Nouns (Generic and specific)	346 (5.68%)	287 (5.55%)
Dept. of Psychology	**TURKISH (n=6636)**	**ENGLISH (n=6515)**
Nouns (Generic and specific)	437 (6.59%)	378 (5.80%)
Total	**TURKISH (n=12729)**	**ENGLISH (n=11687)**
	783 (6.15%)	665 (5.69%)

Nouns are most common lexical groups in the corpus. This table indicates that nouns are employed both in the Turkish and English corpus. This finding suggests that lectures

have highly abstract informational focus. Especially the use of specific nouns is common in both corpora. There totally 783 nouns in the lectures with Turkish medium of instruction and 665 (6.15) nouns in the (5.69) lectures with English medium of instruction.

3.1.11 Passives

According to Biber (1988:228) "Passives have been taken as one of the most important surface markers of the de-contextualized or detached style that stereotypically characterizes writing"). He adds that dropping the agent results in a static or an abstract presentation of information; therefore agentless passives in texts indicate an abstract presentation of information, in addition, agentless passives are used when the agent does not have a salient role in the discourse. On the other hand, by passives are used when the patient is more closely related to the discourse theme than the patient.

In Turkish passive constructions have similar roles. Passives are used to present propositions with reduced emphasis on the agent. Leckie-Terry (1995:78) state that

> In an active construction, the agent is the subject and it appears before the verb and the effected entity, so it represents the cause-effect nature of the event as it happens in actual time. However, in a passive construction, the affected entity appears in the first position, thus representing a reclassification of phenomena. Such a construction provides prominence to an entity according to principles rather than chronological facts. In other words, in such constructions, causality is not the main concern. Instead, meanings reflect attribution or classification in passive constructions. As a result, the agent of the verb is removed from thematic position and frequently from the text.

In Turkish, the primary passive suffix is –IL. If a verb stem ends in a vowel or a consonant l, then the suffix –In serves as passive suffix. Similar to English, in Turkish, passive constructions are divided into two; agentless passives and by passives. Özsoy

(1999:34) explains the process as follows: "... when the verbs which assign the dative – (y)A, the ablative –Dan, the commutative –(y)lA and the locative –Da to their objects are passivized, the nouns do not lose their case marker and the agent is not expressed". Eg. Sorular belirlendi (the questions are determined); ödev bitirildi (The assignment completed). The by passives in Turkish is expressed by the post positional phrase 'tarafından'. This phrase is inflected with the possessive suffix agreeing in number and person with the noun/pronoun and it is used optionally (Kornfilt 1997). It is also possible to express by passives by using the adverbial suffix –CE, eg. *Toplantı yönetimce iptal edildi. (The meeting was cancelled by the administration)*

3.1.11.1 Passives in the Corpus

Some examples of agentless passive constructions are;

[Ex. 65]   It *is said* that the heat capacity is the amount of heat required to increase the tempurature of one mall. (METU Dept. Of Geological Engineering).

[Ex. 66]   Burada bozu*l*maya uğramış, parçala*n*mış, kırı*l*mış malzemeler sözkonusu. (HU Dept. Of Geological Engineering)

[Ex. 67]   ...bunlar mükemmel malzemeler olarak kabul edi*l*ir. (HU Dept. Of Geological Engineering)

Some examples of by passives:

[Ex. 68]   Freud tarafından ortaya konulan kişilik modelinde, kişiliği yapılara ayıran, kuramcı bir anlayış vardır. (HU Dept. of Psychology)

[Ex. 69]   The mean ionic molality is denoted by m subscript... (HU Dept. Of Geological Engineering)

Table 11. Frequency and Rate of Passives

Dept. of Geological Eng.	TURKISH (n=6093)	ENGLISH (n=5172)
Passive constructions	45 (0.74%)	55 (1.06%)
Dept. of Psychology	TURKISH (n=6636)	ENGLISH (n=6515)
Passive constructions	51 (0.77%)	40 (0.61%)
Total	TURKISH (n=12729)	ENGLISH (n=11687)
	96 (0.75%)	95 (0.81%)

In both corpora, the number of passive constructions is nearly the same. The use of passives constitutes nearly 1% of both Turkish and English media lectures. It might be argued that passives are not markedly used in lecture discourse.

3.1.12 Tense Markers: Present Tense and Past Tense

Tense markers are divided into the categories of present tense, past tense, future tense and progressive tense. In this study, only present and past tense are taken into consideration. The present tense indicates the topics and actions of immediate relevance. Moreover, present tense markers can be used to focus on the information being presented and to remove the focus from any temporal sequencing (Biber, 1988:224). It is also suggested that the present tense is employed to refer to general facts and events. The present tense is important for this particular study because, it is usually used in academic styles to focus on the information being presented and remove focus from any temporal sequencing. In contrast, the past tense places focus on the temporal sequence, even when used for informational purposes. In English for the present tense, all verb base forms and third person singular forms are counted. In Turkish, the suffix –Ir, which is called aorist, is stated as the marker of present tense (Erkman-Akerson, 1994; Kornfilt, 1997).

Past tense forms are usually taken as the primary surface marker of narrative (Biber, 1988:223). In Turkish, two different suffixes, namely –DI and –mIş, are stated as the markers of the past tense. The difference between the suffix –DI and the suffix –mIş is usually characterized as a difference between direct and indirect experience or

witnessed events and inference (Lewis, 1967). Kornfilt (1997:337) makes the difference as follows; "the first is the definite past, expressed by means of the suffix –DI, and the second is the reported past expressed by the suffix –mIş ".

Since time and tense are different concepts, it is possible for tense markers to refer to distinct temporal meanings other than their conventional references. This is valid both for Turkish and English. For example, the present tense is said to express a future act in the spoken language, especially when used as a promise or present tense is also used to refer to a past event or action, particularly in narratives. Moreover, the progressive tense marker –yor is stated having the present tense meaning in the spoken language e.g *Su buradan geçiyor ve buraya doluyor* (Kornfilt, 1997; Underhill, 1987).

3.1.12.1 Tenses in the Corpus

[Ex. 70] Jung also say*s* that resistance is important... (METU Dept. of Psychology)

[Ex. 71] This *was* an overview of Adler therapy... (METU Dept. of Psychology)

[Ex. 72] Freud psikaanalist kuramının kurucusu olarak bu alanda büyük bir devrim yarat*tı*. (HU Dept of Psychology)

[Ex. 73] Bir bakışı ile öğrencileri etkileyecek kadar sert bir kişiliği var*mış*. (HU Dept of Psychology)

[Ex. 74] Üstteki eşitlikle aynı şekilde çöz*er*siniz. (HU Dept. of Geological Engineering)

[Ex. 75] İnşaat mühendisi hangi katsayı ile çalışacağını bil*ir*. (HU Dept. of Geological Engineering)

Table 12. Frequency and Rate of Tenses

Dept. of Geological Eng.	TURKISH (n=6093)		ENGLISH (n=5172)	
Present tense	99	(1.62%)	180	(3.48%)
Past tense	38	(0.62%)	15	(0.29%)
Dept. of Psychology	**TURKISH (n=6636)**		**ENGLISH (n=6515)**	
Present tense	61	(0.92%)	160	(2.46%)
Past tense	34	(0.51%)	18	(0.28%)
Total	**TURKISH (n=12729)**		**ENGLISH (n=11687)**	
	232	**(1.82%)**	**373**	**(3.19%)**

Since the corpus is an example of spoken discourse not all sentences or utterances in the sample are verbal sentences. However what is striking is that in both corpora present tense is employed more frequently than past tense. In other words in lecture register, present tense is commonly used. This result might indicate that the information presented is given importance and in lecture discourse general facts and events are emphasized by using present tense.

3.1.13 Possibility Modals

They indicate the speaker's subjective evaluation towards the occurrence of an action or an event these are, 'may', 'can', 'might', 'could' etc. in English. Chafe (1985; in Biber, 1988) includes possibility modals among the evidentials that mark reliability.

In Turkish, the morpheme *–(y)Ebil* is the marker of possibility. The combination of the suffix *–Ebil* with the aorist *–Ir* is also said to refer to possibility. (Erguvanlı Taylan and Özsoy 1993). "The expression of impossibility is achieved by inserting the possibility marker *–(y)E* into a verbal string immediately to the left of the negative suffix *–mE(z)*; e.g. *bu şartlarda uçak inemez* (under such circumstances the plane can not be landed) Furthermore, the negative marker *–mE* is also used with the possibility morpheme *-Ebil*, e.g. *seni affetmeyebilir* (she may not forgive you).

3.1.13.1 Possibility Modals in the Corpus

[Ex. 76]   Böyle birşeyle de karşılaş*abil*irsiniz ilerde

[Ex. 77]   Temellerin boyutları aynı olunca ölçüme gerek yok taşıy*abil*ir dedik.

[Ex. 78]   Böyle bir sonuç kabul edil*ebil*ir.

[Ex. 79]   molarity, molality and formality *can* also be defined as follows

[Ex. 80]   the chemical potential of any component in the phase *may* be obtained by the partial differentiation of g with respect to NI.

Table 13. Frequency and Rate of Possibility Modals

Dept. of Geological Eng.	TURKISH (n=6093)	ENGLISH (n=5172)
Possibility modals	27 (0.44%)	19 (0.37%)
Dept. of Psychology	**TURKISH (n=6636)**	**ENGLISH (n=6515)**
Possibility modals	32 (0.48%)	35 (0.54%)
Total	**TURKISH (n=12729)**	**ENGLISH (n=11687)**
	59 (0.46%)	54 (0.46%)

In both corpora the possibility modals have the same role and they are employed in the same rate (0.46).

3.1.14 Prepositional and Postpositional Phrases

Prepositions are important devices for packing high amounts of information into academic nominal discourse. Chafe (in Biber, 1988: 237) describes prepositions as a device for integrating information into idea units and expanding the amount of information contained within an idea unit. In academic texts prepositions usually co-occur with nominalizations and passives. Some examples of prepositions are, *against, amid, amidst, among, at, besides, between, by, during, in, into, of, off, on, opposite, out, through, to, towards, upon, versus, with, without* etc.

In Turkish, postpositions are formed with the genitive suffix –In and case marking properties are important in Turkish postpositions. Csato and Johanson (1998:222)

distinguish four main types of postpositions based on their case marking strategies. The first type is similar to genitive construction like *içinde* (in) e.g. *odanın içinde* (in the room). The second type is the one constructed with a particular case suffix like, *bakımından* (from the point of view), *yüzünden* (because of x) and *uğruna* (for the sake of). In the third type, no case suffix is attached to the postposition and the nominal is in the nominative e.g. *Gibi* (like), *için* (for), *kadar (as much as)*, *ile* (with). The fourth type, takes a nominal in the dative or ablative e.g. *doğru* (towards), *dolayı* (because of this).

3.1.14.1 Prepositional and Postpositional Phrases in the Corpus

Table 14. Frequency and Rate of Prepositional and Postpositional Phrases

Dept. of Geological Eng.	TURKISH (n=6093)	ENGLISH (n=5172)
Postposition / Preposition	73 (1.20%)	338 (6.54%)
Dept. of Psychology	**TURKISH (n=6636)**	**ENGLISH (n=6515)**
Postposition / Preposition	163 (2.46%)	147 (2.26%)
Total	**TURKISH (n=12729)**	**ENGLISH (n=11687)**
	236 (1.85%)	485 (4.15%)

In lectures with English medium of instruction, the use of prepositions constitutes 4.15% of the whole corpus, therefore they are markedly important. Postpositions in Turkish have similar properties but postpositions are not common in Turkish as prepositions are in English therefore it is natural that they are not as frequent as prepositions. In the Turkish corpus, postpositions constitute 1.85 % of the whole corpus.

Some examples of prepositions and post positions are;

[Ex. 81] The point 'z' is *on* the boundary line, *on* equilibrium line actually, so, *in* the figure, *at* point z , the values *of* calcium carbonate are equal *in* all phases. (METU Dept. Of Geological Engineering)

[Ex. 82] daha önceden bahsettiğimiz *gibi* bugün psikaanlist olan Sigmund Freud *ile* başlıyoruz. (HU Dept. Of Psychology)

The use of action verbs are nearly the same both in English and Turkish medium of instruction. Action verbs constitute nearly 1% of the whole corpus therefore; it may be argued that the use of action verbs is not significant for lecture register and they do not occur with high rates.

3.1.16 Possessive Markers

In English, a prepositional phrase is the commonest type of post-modification among the prepositions used in post modification (Quirk et al.,1987) and it is important to distinguish the choice between the –of construction and the genitive construction; these are both used as possessive markers. In many cases, there is a regular correspondence between any *–of phrase* and the genitive e.g. *The ship's funnel is red* (genitive construction) and *The funnel of the ship is red (-of construction)*. The genitive construction in English, consists of two noun phrases; one a noun phrase marked for the genitive case by inflection, the other a succeeding and super ordinate noun phrase unmarked for case in which the genitive noun phrase is embedded with a determinative function which means the genitive noun phrase functions like a definite determiner eg. *The city's population.* (Quirk et al., 1987:1276). In the *-of construction*, the super ordinate noun phrase precedes a noun phrase introduced by *of.* In terms of their grammatical status, the genitive noun phrase and the *-of phrase* are different in that the genitive noun phrase has the function of a definite determinative whereas, the *-of phrase* has the function of a post modifier with the super ordinate noun phrase either definite or indefinite. However, in terms of function there is not an important distinction therefore, both forms have been taken into consideration during the counting process.

Possessive suffix in Turkish is followed by the noun conjugated for the agreeing genitive marker. It is conjugated as follows:

1st person singular: *Benim arabam*   *(Benim) bilgisayarım*

2nd person singular: *Senin araban*   *(Senin) bilgisayarın*

3rd person singular: *Onun arabası*   *(Onun) bilgisayarı*

1st person plural: *Bizim arabamız*   *(Bizim) bilgisayarımız*

2nd person plural *Sizin arabanız*   *(Sizin) bilgisayarınız*

3rd person plural *Onların arabası /arabaları*   *Onların bilgisayarı/ bilgisayarları*

As can be seen from the examples, since the person information can be recovered from the genitive suffix, the personal pronoun with the possessive suffix is usually omitted since it can be recovered from the genitive suffix.

3.1.16.1 Possessive Markers in the Corpus

Table 16. Frequency and Rate of Possessive Markers

Dept. of Geological Eng.	TURKISH (n=6093)	ENGLISH (n=5172)
Possessive markers	22 (0.36%)	12 (0.23%)
Dept. of Psychology	**TURKISH (n=6636)**	**ENGLISH (n=6515)**
Possessive markers	69 (1.04%)	49 (0.75%)
Total	**TURKISH (n=12729)**	**ENGLISH (n=11687)**
	91 (0.71%)	61 (0.52%)

As can be observed from the table, possessive markers are insignificant for lecture registers they constitute less than 1% of lecture register both with Turkish and English medium of instruction. In Turkish, the use of the possessive marker is more frequent due to the nature of Turkish. In Turkish, although the personal pronoun with the possessive suffix is omitted it can be recovered from the genitive suffix, therefore during the counting process they have been counted in the genitive suffix form.

3.2 THE LEXICO-GRAMMATICAL FEATURES OF THE LECTURES ALONG DIMENSIONS

The discoursal features of the language of lectures are analysed along with the dimensional characteristics that are developed by Biber (1988). He states that frequently co occurring linguistic features have at least one shared communicative function (1988:63). In other words it is claimed that frequent co-occurrence of a group of features in texts is indicative of an underlying function shared by those features. Three dimensions are determined for the register of lectures. These dimensions are; Dimension 1: Structural Elaboration: Interactional (Unplanned) versus Informative (Planned), Dimension 2: Argumentative vs. Reported Presentation and Dimension 3: Overt vs. Implicit Logical Cohesion.

Dimension1: Structural Elaboration: Interactional/Unplanned vs. Informational/ Planned: Marks the difference between the texts with Informational /Planned Discourse and those with Involved/Unplanned discourse. There are two groups of features of this dimension; positive and negative features. Positive features are the markers of Interactional/Unplanned discourse, whereas negative features are the markers of Informational/Planned discourse. To determine these features necessitates microscopic analysis of the text. These are the lexico- grammatical patterns. The major co-occurring features associated with Dimension 1 are;

- Interactional/Unplanned (Positive features)

    Yes/No Questions

    Or-coordination

    Stance adjectives

    What if Questions

    Time deictic (Time adverbials)

    Focus Markers

    Amplifiers

    Down toners

    Imperatives

    Wh- questions

1st and 2nd person pronouns

Causative adverbial Clauses

- Informational/Planned (Negative Features)

Relative Clauses

And clause/phrase coordination

Common nouns

Complement clauses

Agentless Passives

Positive and negative grouping does not indicate the strength of the relationship; rather these two groups represent sets of features that occur in a complementary pattern. That is, "when the features in one group occur together frequently in a text, the features in the other group are markedly infrequent in that text and vice versa" (Biber and Hared 1994: 187). To interpret the dimensions it is important to consider reasons for the complementary distribution of these two groups of features as well as the reasons for the co-occurrence pattern within each group. When Dimension 1 is considered it can be seen that the positive features include non declarative, interactive sentence types, involved lexical classes and main clause features. In other words, the positive features on this dimension show an involved, interactional, affective, fragmented and unplanned discourse and Biber (1988:105) explains this as follows; "First and second person pronouns refer directly to the addressor and addressee". This means that in a highly interactive discourse personal pronouns are used frequently. Direct WH questions also the markers of interaction because they require a specific addressee to answer questions. Causative adverbial clauses are used in an interactional or involved discourse because they express a justification for an action. All these positive features tend to co-occur; for example when there are frequent questions and contrast clause coordinators in a text, there also tend to be frequent stance adjectives and contractions. The same is true for the negative features because they also represent a set of co occurring features; for example when there are frequent total dependent clauses and relative clauses in a text, there also tend to be frequent common nouns and adjectives. Thus the positive features and negative features belong to a single dimension and they have a 'complementary distribution' (Biber and Hared, 1994).

Dimension 2: Argumentative vs. Reported Presentation: The term argumentative refers to a qualified presentation of information, comparing and contrasting various alternatives, while reported styles simply present the facts with little consideration of alternatives possible. Dimension 3 shows a basic opposition between present tense and past tense. However, as indicated by the co-occurrence of past tense verbs and future tense modals (the negative features), this dimension does not represent a simple difference between present and past events (Biber, 1988). The positive features (possibility modals, concession conjuncts and conditional clauses) represent present time, with frequent details and qualifying conditions and concessions and negative features (proper nouns, generic nouns) represent projected time (past or future) with a focus on human referents.

- Argumentative (positive features)
  Present tense
  Predicative adjectives
  Possibility modals
  Concession conjuncts

- Reported (negative Features)
  Past Tense
  Nouns (generic and specific)

Dimension 3: Overt vs. Implicit Logical Cohesion: Marks the texts in terms of cohesion. Positive features mark the overt logical cohesion in the discourse and negative features mark the implicit logical cohesion in the discourse. The lexico-grammatical patterns that are going to be analyzed in order to disclose the discoursal features along dimension 3 are:

- Overt Logical Cohesion (Positive Features)
  Conjuncts
  Multi-functional Adverbial subordination
  Discourse particles
  Action verbs

Post position/preposition

Conditional Clause Connectors

- Implicit Logical Cohesion (Negative Features)

Nouns

Possessive Markers

Passive constructions

In this study, the distribution of these 31 linguistic features across 16 texts and nearly 25.000 words were analysed. The corpus was the transcription of 16 lectures and the whole corpora were put into computer and the frequencies of all linguistic features counted by hand since there is not an access to a tagger and there is not a tagging program written specifically for Turkish.

The following tables 17 and 18 present the frequencies of Dimension 1 scores for Turkish and English medium lecture register.

Table 17. (HU. Dept. of Geological Engineering – Turkish N=6093)

		Positive Features	Negative Features	
		Interactional Features (x)	Informational Features (y)	Ratio to total word count (%) $(x-y)/n*100$
Dimension 1	Interactional / Unplanned vs. Informational / Planned	644	459	%3
		Argumentative Presentation Features (x)	Reported Presentation Features (y)	Ratio to total word count (%) $(x-y)/n*100$
Dimension 2	Argumentative vs. Reported Presentation	144	384	-%4
		Overt Logical Cohesion (x)	Implicit Logical Cohesion (y)	Ratio to total word count (%) $(x-y)/n*100$
Dimension 3	Overt vs. Implicit Logical Cohesion	349	429	-%1.3

The 'N' in Table 17 refers to the number of words in this particular corpus. Positive features form the interactional pole of dimension 1, whereas negative features form the informational pole. For dimension 2, positive features form the argumentative presentation pole whereas negative features form the reported presentation form. Similarly, positive features in dimension 3 form the overt logical cohesion pole and negative features form the implicit logical cohesion. As can be observed from the table, when the medium of instruction is Turkish there is more interaction in lectures in Geological engineering departments; because the total number of positive linguistic features is higher than the total number of informational features. For Dimension 2, the number of negative linguistic features, which form the reported presentation end of the dimension, is higher than the number of negative linguistic features. This means that in

lectures when the medium of instruction is Turkish, lecturers use the reported style and they simply present the facts. When it comes to dimension 3 it can be observed that when the lecturers use Turkish there is an implicit logical cohesion.

Table 18. (METU Dept. of Geological Engineering – English N=5172)

		Positive Features	Negative Features	
		Interactional Features (x)	Informational Features (y)	Ratio to total word count (%) $(x-y)/n*100$
Dimension 1	Interactional / Unplanned vs. Informational / Planned	245	428	-%3.5
		Argumentative Presentation Features (x)	Reported Presentation Features (y)	Ratio to total word count (%) $(x-y)/n*100$
Dimension 2	Argumentative / Reported Presentation	208	302	-%1.8
		Overt Logical Cohesion (x)	Implicit Logical Cohesion (y)	Ratio to total word count (%) $(x-y)/n*100$
Dimension 3	Overt / Implicit Logical Cohesion	522	354	%3.2

Table 18 demonstrates that when the medium of instruction is English, the informational features rather than the interactional features are higher. In other words when the medium of instruction is a foreign language there is less interaction in a class. However, in the second dimension the results are similar with Table 18 and it means that no matter what the medium of instruction is the style in lecture register is reported. However in dimension 3 it can be clearly observed that there is overt logical cohesion when the medium of instruction is a foreign language, specifically English.

Table 19 Dimension 1: Structural Elaboration (Geological Engineering)

Interactional / Unplanned Discourse Features (Positive)	TURKISH (n=6093)		ENGLISH (n=5172)	
Yes / No questions	57	(0,94%)	16	(0,31%)
Or - coordination	17	(0,28%)	8	(0,15%)
Stance adjectives	10	(0,16%)	6	(0,12%)
'What if' questions	23	(0,38%)	1	(0,02%)
Time deictic / adverbials	30	(0,49%)	30	(0,58%)
Focus Markers	33	(0,54%)	4	(0,08%)
Amplifiers	27	(0,44%)	4	(0,08%)
Downtoners	12	(0,20%)	4	(0,08%)
Imperatives	29	(0,48%)	23	(0,44%)
Wh- questions	74	(1,21%)	21	(0,41%)
1st and 2nd person pronouns	308	(5,05%)	115	(2,22%)
Causative adverbial clauses	24	(0,39%)	13	(0,25%)
TOTAL	**644**	**(10,57%)**	**245**	**(4,74%)**

Informational / Planned Discourse Features (Negative)	TURKISH (n=6093)		ENGLISH (n=5172)	
Relative Clauses	81	(1,33%)	25	(0,48%)
And clause / phrase coordination	17	(0,28%)	59	(1,14%)
Common nouns	225	(3,69%)	251	(4,85%)
Complement clauses	95	(1,56%)	45	(0,87%)
Agentless passives	41	(0,67%)	48	(0,93%)
TOTAL	**459**	**(7,53%)**	**428**	**(8,28%)**

END RESULT	**185**	**(3,04%)**	**-183**	**(3,54%)**

Table 19 shows the frequencies of both positive and negative features of Dimension 1. As can be seen from the table this part of the corpus is based on the lectures from the faculty of engineering, department of Geological engineering. The number of words for Turkish medium of instruction (HU Dept. of Geological Engineering) is 6093 and for English medium of instruction (METU Dept. of Geological Engineering) is 5172. In the first column of the table, the frequency of each linguistic feature is given and in the second column the percentages are given both for Turkish and English medium lectures. In table 19 it is possible to observe that Dimension scores are computed by adding the frequencies of positive features (simple responses, yes/no questions, or coordination, stance adjectives and so forth and then subtracting the frequencies of negative features

(relative clauses, common nouns complement clauses etc). The end result in this table refers to this mentioned score.

From Table 19 it can be seen that yes no questions are more frequent when the medium of instruction is Turkish and it can be concluded that the interaction is more frequent when the lecture is in the mother tongue. The same is true for the use of complement clauses and causative adverbials. These complex structures are frequently used when the lecture is in the mother tongue. It is also possible to say that the lecturer avoids using these complex structures when the medium of instruction is a foreign language. When the sum results are considered it can be said that when the medium of instruction is Turkish, the mother tongue, the discourse structure is more interactional and when the medium of instruction is English the discourse structure is more planned and informational.

The positive features of Dimension 1 can be seen from Figure 1.

Figure 1: Dimension 1: Structural Elaboration (Interactional / Unplanned Discourse Features - Positive)

DIMENSION 1: STRUCTURAL ELABORATION
(Interactional / Unplanned Discourse Features - Positive)
■TURKISH □ENGLISH
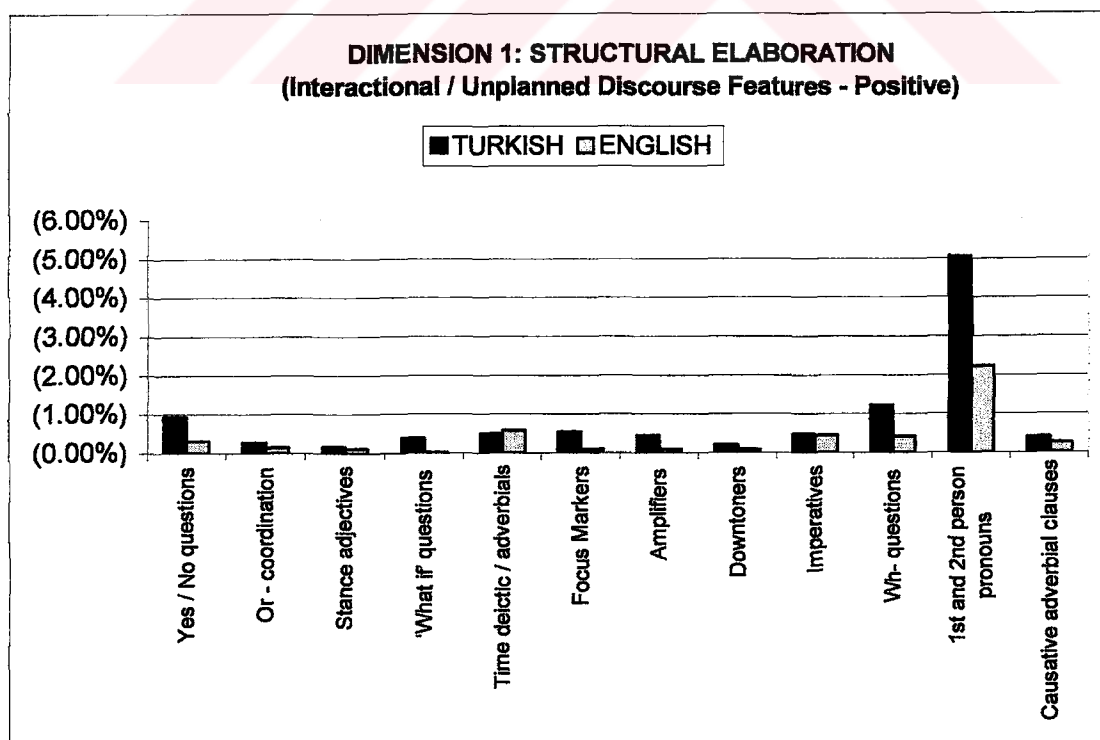
As can be seen from Figure 1, among positive features which constitute the interactional / unplanned pole of dimension1 the most frequent linguistic features are first and second person pronouns. Furthermore, there is a considerable difference between Turkish and English medium lectures. In Turkish the rate of personal pronouns is 5% whereas in English it is 2%. The reason might be the structure of Turkish; in Turkish personal pronouns are also called free pronouns (Kornfilt,1997) and can be used on their own just like English but they can also be deleted and then recovered from the inflection of the verb. There is also a considerable difference in the use of WH questions. When the medium of instruction is Turkish, wh- questions appear more frequently. Since WH questions are the indicators of interaction, it is possible to say that there is more interaction when the lectures are in the mother tongue.

The negative features of Dimension 1 can be seen from Figure 2.

Figure 2. Dimension 1: Structural Elaboration (Informational / Planned Discourse Features - Negative)
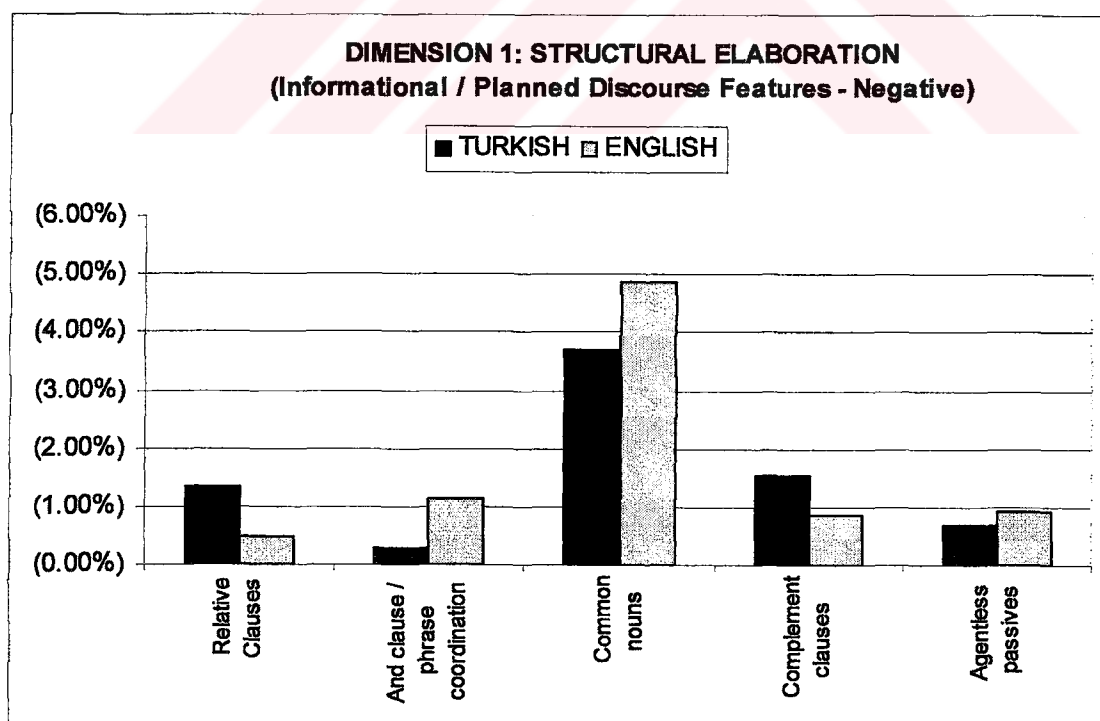
When negative features of Dimension 1 are considered, the most frequent linguistic features are 'common nouns'. The textual function of nouns is that they indicate a high informational focus or a high nominal content in a text (Biber, 1988). Therefore, since the communicative function of lectures is to give information it is natural that nouns are used frequently. When the use of relative clauses and complement clauses is considered it can be seen that when the medium of instruction is Turkish in engineering lecture discourse the use of complex structures are frequent. The major function of relative clauses in a text is to provide elaborated information about the discourse referents. Consequently they usually take part in lecture discourse; however when the medium of instruction is English lecturers might prefer simpler constructions.

Figure 3. Dimension 1: Structural Elaboration (Geological Engineering Lecture Discourse)
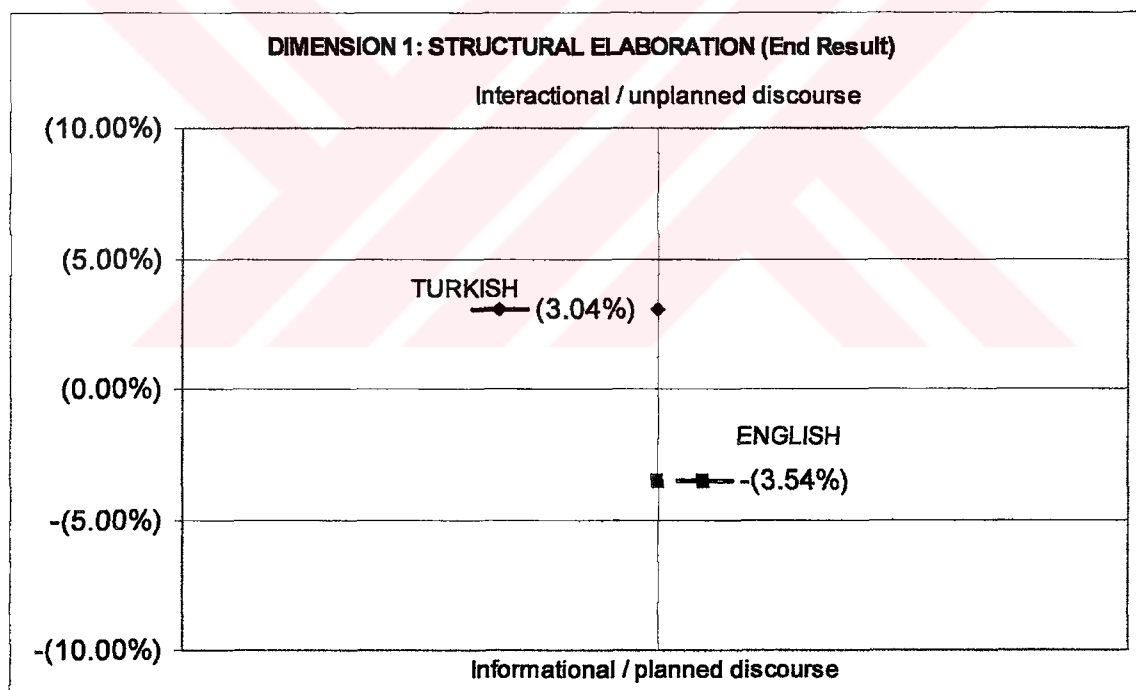
As seen in Figure 3, the discoursal features of university lecture are closer to the interactional / unplanned pole when the medium of instruction is Turkish at the engineering faculty. On the other, hand when the medium of instruction is English the register is closer to the informational and planned end of Dimension 1. In fact just like the other spoken registers university lectures have values around 0-3, reflecting a lesser

but balanced use of both the involved and interactional features and structural elaboration features. For university lecture registers it is not likely to be extremely involved and interactional.

Table 20. Dimension 2: Argumentative vs. Reported Presentation

Argumentative Presentation Features (Positive)	TURKISH (n=6093)		ENGLISH (n=5172)	
Present tense	99	(1,62%)	180	(3,48%)
Predicative adjectives	18	(0,30%)	7	(0,14%)
Possibility modals	27	(0,44%)	19	(0,37%)
Concessive conjuncts	0	(0,00%)	2	(0,04%)
TOTAL	**144**	**(2,36%)**	**208**	**(4,02%)**

Reported Presentation Features (Negative)	TURKISH (n=6093)		ENGLISH (n=5172)	
Past tense	38	(0,62%)	15	(0,29%)
Nouns (Generic and specific)	346	(5,68%)	287	(5,55%)
TOTAL	**384**	**(6,30%)**	**302**	**(5,84%)**

END RESULT	-240 -(3,94%)	-94 -(1,82%)

As can be seen from the table, at Geological engineering department when the medium of instruction is English the total number of argumentative presentational features are 144 whereas when the medium of instruction is Turkish the total number is 208. When the negative end or the reported presentational features are considered the total number for mother tongue medium of instruction is 384 and for foreign language medium of instruction is 302. When the end results are considered it is seen that the register in both media is reported and this is the general characteristic of lecture registers.

Figure 4. Dimension 2: Argumentative vs. Reported Presentation (Argumentative Presentation Features - Positive)
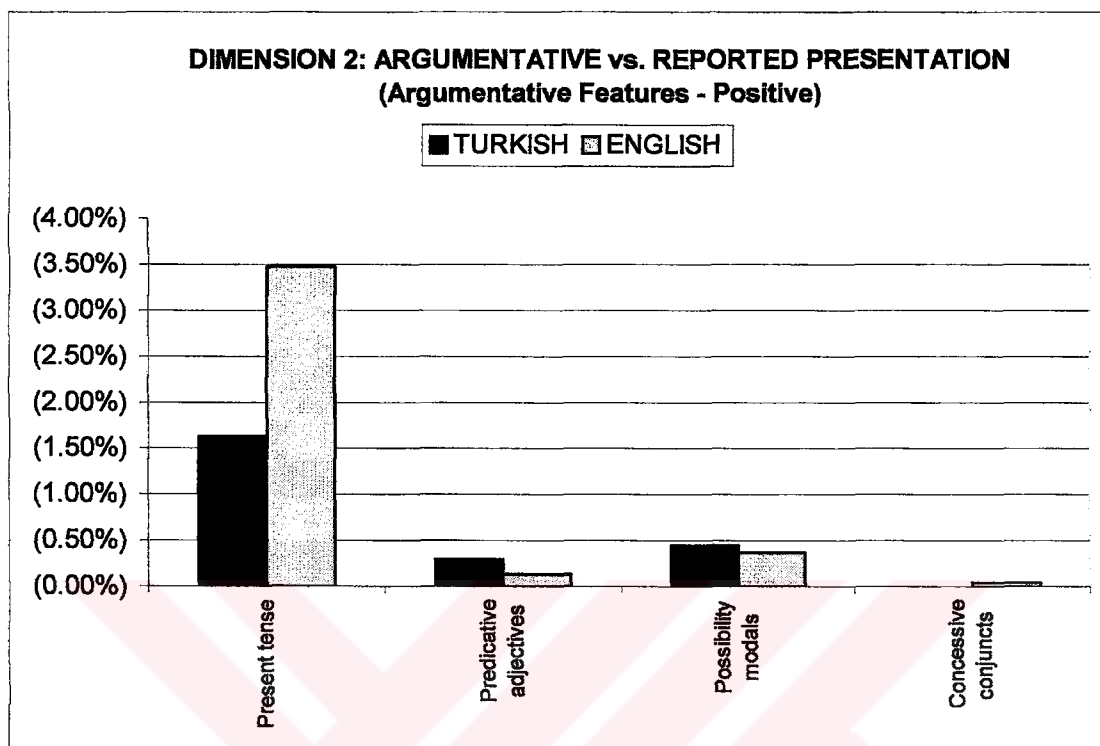
It can be observed from Figure 4 that among the linguistic features that constitute argumentative presentation end of Dimension 2 the most striking difference is in the use of present tense. When the medium of instruction is English the percentage of present tense is 3.50% and 1.50% when the medium of instruction is Turkish. Another point is the use of concessive conjuncts. As can be seen in both registers there is infrequent use of concessive conjuncts. Similarly other linguistic features like modals and predicative adjectives are infrequent.

Figure 5. Dimension 2: Argumentative vs. Reported Presentation (Reported Presentation Features - Negative)
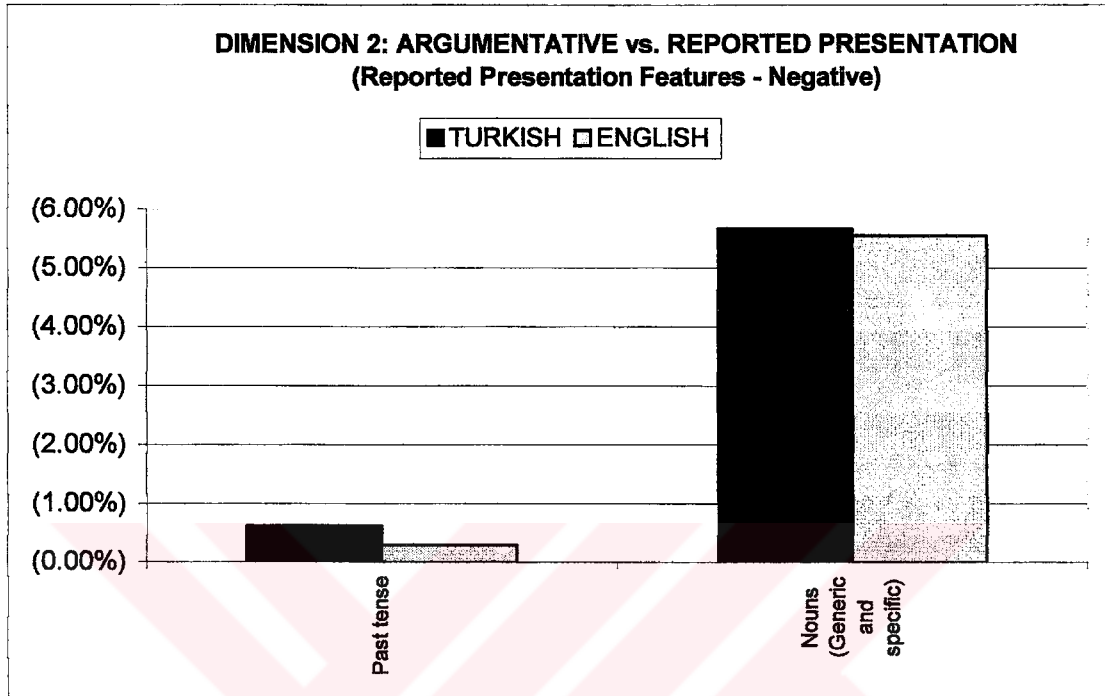
In Figure 5, it is observed that nouns are used frequently in the register of Geological engineering lectures and there is not a considerable difference when the medium of instruction is English or Turkish. In the use of past tense there is a slight difference between Turkish and English medium of instruction. When the medium of instruction is Turkish, past tense is slightly more preferred.

Figure 6. Dimension 2: Argumentative vs. Reported Presentation (End Result)
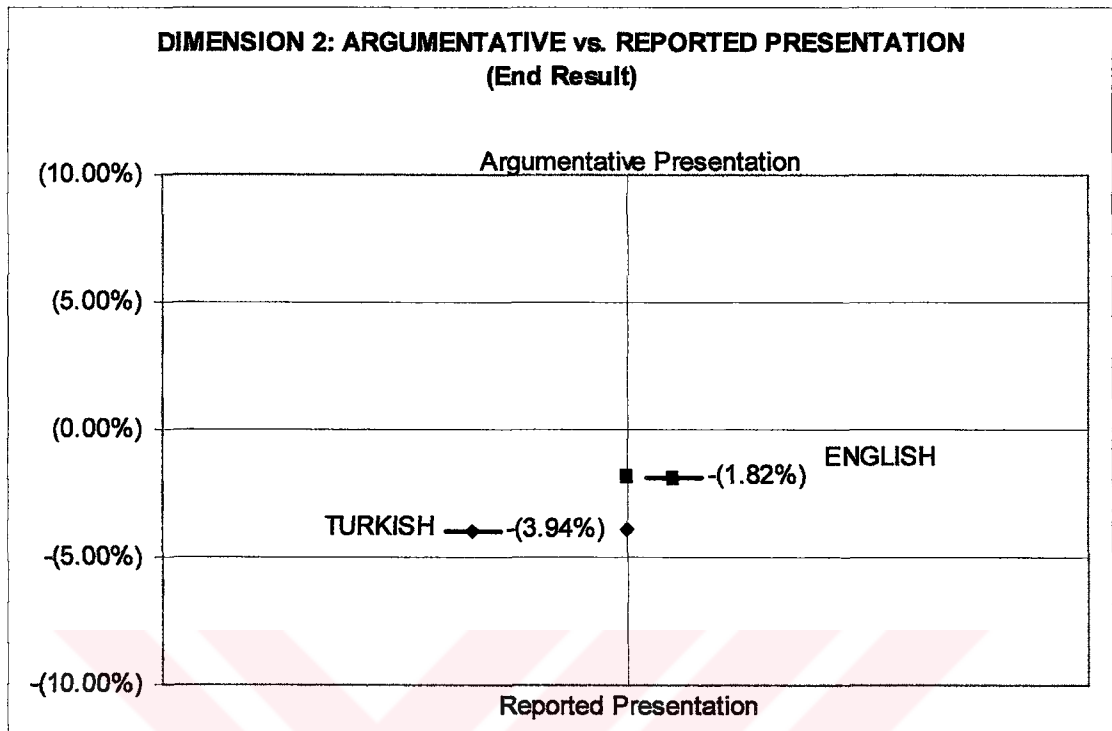
From Figure 6 it can be observed that in the register of academic lectures of the engineering faculty the linguistic features that constitute the reported presentation end is used frequently; therefore, the register is reported whether the medium of instruction is Turkish or English.

The two ends of Dimension 3 are Overt vs. Implicit Logical Cohesion. In Table 5 the frequencies and percentages of the linguistic features of this dimension are presented.

Table 21. Dimension 3: Overt vs. Implicit Logical Cohesion

Overt Logical Cohesion (Positive)	TURKISH (n=6093)		ENGLISH (n=5172)	
Conjuncts	56	(0,92%)	76	(1,47%)
Multi-functional adverbial subordination	34	(0,56%)	7	(0,14%)
Discourse particles	60	(0,98%)	34	(0,66%)
Action verbs	80	(1,31%)	62	(1,20%)
Postposition / Preposition	73	(1,20%)	338	(6,54%)
Conditional Clause Connectors	46	(0,75%)	5	(0,10%)
TOTAL	**349**	**(5,73%)**	**522**	**(10,09%)**

Implicit Logical Cohesion (Negative)	TURKISH (n=6093)		ENGLISH (n=5172)	
Nouns	362	(5,94%)	287	(5,55%)
Possessive markers	22	(0,36%)	12	(0,23%)
Passive constructions	45	(0,74%)	55	(1,06%)
TOTAL	**429**	**(7,04%)**	**354**	**(6,84%)**

END RESULT	**-80**	**-(1,31%)**	**168**	**(3,25%)**

When the total results are considered in Table 21, it becomes clear that when the medium of instruction is Turkish, the total number of linguistic features constituting the positive end of the dimension is 349 and the negative end of the dimension is 429 the end result is the subtraction of negative end from the positive end, it is -80 which means that there is implicit logical cohesion when the medium of instruction is Turkish. On the other hand, when the medium of instruction is English the total number of linguistic co-occurrences constituting the positive end of Dimension 3 is 522 and the negative end is 354. The end result is 168 and this means that there is overt logical cohesion when the lecture is taught in English.

Figure 7. Dimension 3: Overt vs. Implicit Logical Cohesion (Overt Logical Cohesion -
Positive)
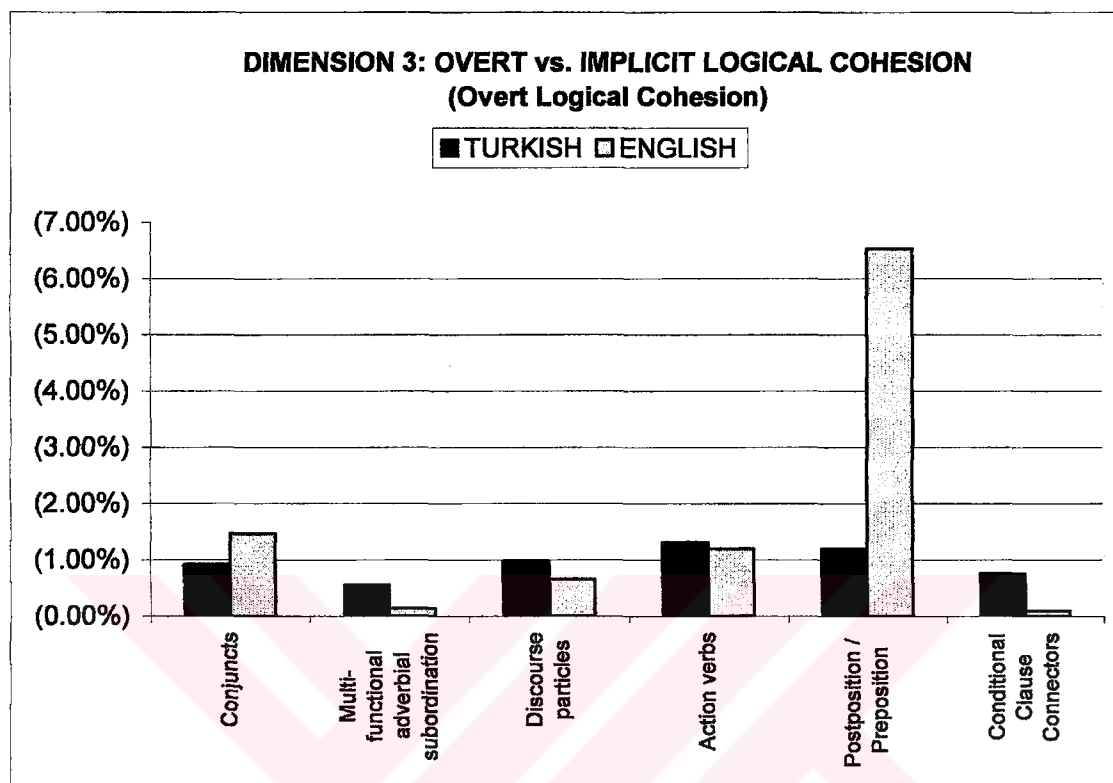
The point that is worth attention in this figure is that prepositions in English are used in
a high frequency in the register of university lectures when the medium of instruction is
English. This is inevitable when the structure of English is taken into consideration.
When the medium of instruction is Turkish naturally it is only possible to talk about
postpositions rather than prepositions; however, they are not used as frequently as
prepositions and this is due to the structure of Turkish. There is also a considerable
difference between the use of multi-functional adverbial clauses in Turkish and English
lectures. When the medium of instruction is Turkish the use of multi-functional
adverbial clauses is more frequent. The adverbial clauses play an important role in
constituting the logical cohesion as well as the informational dimension (Biber, 1988).

Figure 8. Dimension 3: Overt vs. Implicit Logical Cohesion (Implicit Logical Cohesion - Negative)
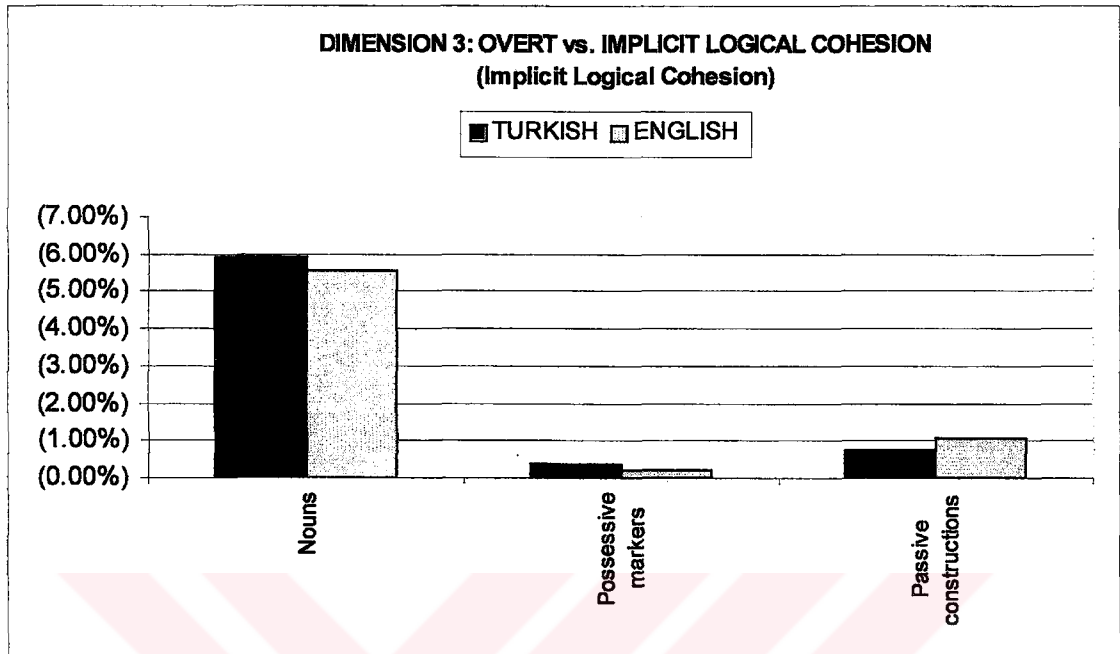
As can be seen from the figure, nouns are used frequently in lecture register. The use of passive constructions in Turkish medium of instruction is more frequent and when it comes to the use of possessive markers there is not a considerable difference between Turkish and English medium of instruction.

Figure 9. Dimension 3: Overt vs. Implicit Logical Cohesion (End Result)
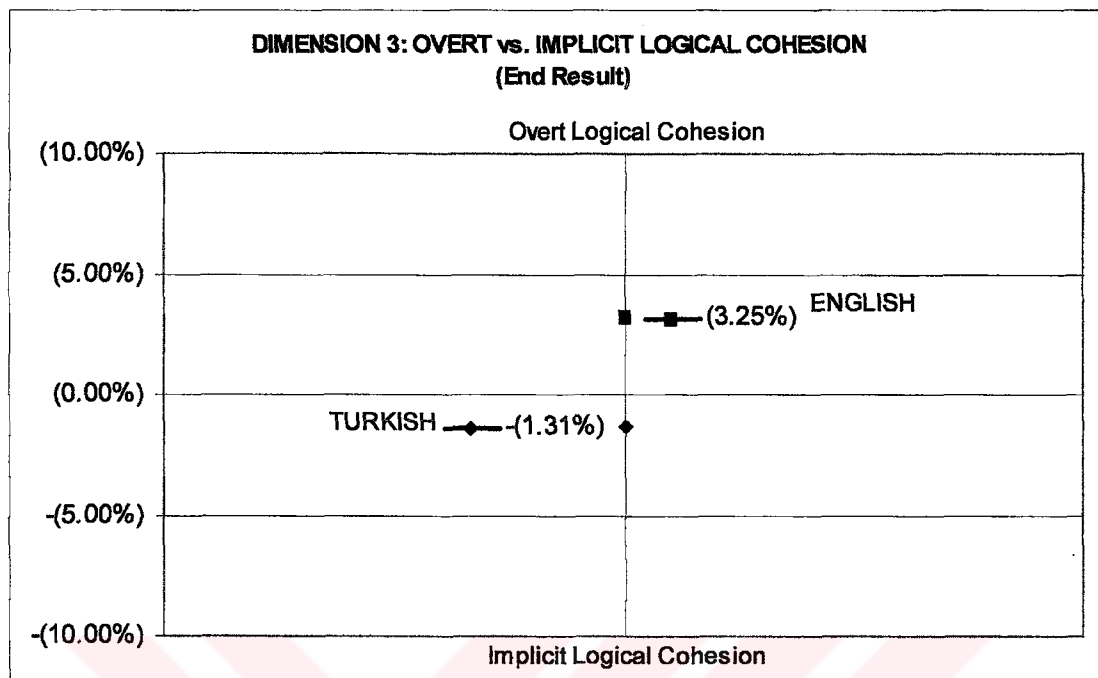
From Figure 9 it is observed that when the medium of instruction is English in university lecture register there is overt logical cohesion and when the medium of instruction is Turkish there is implicit logical cohesion.

Psychology department is chosen as representative of social sciences. The following findings are based on the corpus taken from HU Department of Psychology (the medium of instruction is Turkish) and METU Department of Psychology the medium of instruction is English).

Table 22. (HU. Department of Psychology – Turkish N=6636)

		Positive Features	Negative Features	
		Interactional Features (x)	Informational Features (y)	Ratio to total word count (%) $(x-y)/n*100$
Dimension 1	Interactional / Unplanned vs. Informational / Planned	229	592	-%5.5
		Argumentative Presentation Features (x)	Reported Presentation Features (y)	Ratio to total word count (%) $(x-y)/n*100$
Dimension 2	Argumentative vs. Reported Presentation	109	471	-%5.5
		Overt Logical Cohesion (x)	Implicit Logical Cohesion (y)	Ratio to total word count (%) $(x-y)/n*100$
Dimension 3	Overt vs. Implicit Logical Cohesion	342	557	-%3.2

As can be observed from the table, when the medium of instruction is Turkish the findings are dissimilar to the findings of engineering lecture register in Dimension1; because the total number of positive linguistic features is lower than the total number of informational features. It can be concluded that in the department of Psychology, when the medium of instruction is Turkish the lecture register is informational rather than interactional. For Dimension 2, the number of negative linguistic features, which form the reported presentation end of the dimension, is higher than the number of negative

linguistic features and these findings are parallel to the findings of Geological engineering lecture register. This means that in lectures when the medium of instruction is Turkish, lecturers use the reported style and they simply present the facts. When it comes to Dimension 3 it can be observed that when the lecturers use Turkish there is an implicit logical cohesion and this is also parallel to the findings of Geological engineering lecture register.

Table 23. (METU Department of Psychology – English N=6515)

		Positive Features	Negative Features	
		Interactional Features (x)	Informational Features (y)	Ratio to total word count (%) (x-y)/n*100
Dimension 1	Interactional / Unplanned vs. Informational / Planned	293	510	-%3.3
		Argumentative Presentation Features (x)	Reported Presentation Features (y)	Ratio to total word count (%) (x-y)/n*100
Dimension 2	Argumentative / Reported Presentation	245	396	-%2.3
		Overt Logical Cohesion (x)	Implicit Logical Cohesion (y)	Ratio to total word count (%) (x-y)/n*100
Dimension 3	Overt / Implicit Logical Cohesion	292	467	-%2.7

Table 23 displays that when the medium of instruction is English, the informational features rather than the interactional features are higher. In other words when the medium of instruction is a foreign language there is less interaction in a class and these findings are parallel to the findings of Geological engineering lecture register. In the second dimension the results are similar with the results of Geological engineering

lecture register and it means that no matter what the medium of instruction is the style in lecture register is reported. However in Dimension 3 it can be clearly observed that there is implicit logical cohesion when the medium of instruction is a foreign language, specifically English and this is contrasting with the results of Geological engineering lectures because the results indicate that in Geological engineering when the medium of instruction is English there is overt logical cohesion however, as can be seen in Table 23 in Psychology Department lecture register whether the medium of instruction is English or Turkish there is implicit logical cohesion.

Table 24. Dimension 1: Structural Elaboration

Interactional / Unplanned Discourse Features (Positive)	TURKISH (n=6636)	ENGLISH (n=6515)
Yes / No questions	24 (0.36%)	9 (0.14%)
Or - coordination	12 (0.18%)	17 (0.26%)
Stance adjectives	15 (0.23%)	59 (0.91%)
'What if' questions	1 (0.02%)	0 (0.00%)
Time deictic / adverbials	13 (0.20%)	21 (0.32%)
Focus Markers	46 (0.69%)	13 (0.20%)
Amplifiers	23 (0.35%)	17 (0.26%)
Downtoners	0 (0.00%)	3 (0.05%)
Imperatives	8 (0.12%)	3 (0.05%)
Wh- questions	14 (0.21%)	14 (0.21%)
1st and 2nd person pronouns	58 (0.87%)	109 (1.67%)
Causative adverbial clauses	15 (0.23%)	28 (0.43%)
TOTAL	**229 (3.45%)**	**293 (4.50%)**

Informational / Planned Discourse Features (Negative)	TURKISH (n=6636)	ENGLISH (n=6515)
Relative Clauses	143 (2.15%)	29 (0.45%)
And clause / phrase coordination	60 (0.90%)	105 (1.61%)
Common nouns	292 (4.40%)	275 (4.22%)
Complement clauses	61 (0.92%)	71 (1.09%)
Agentless passives	36 (0.54%)	30 (0.46%)
TOTAL	**592 (8.92%)**	**510 (7.83%)**

END RESULT	-363 -(5.47%)	-217(3.33%)

Table 24 shows the frequencies of both positive and negative features of Dimension 1. As can be seen from the table this part of the corpus is based on the lectures from the faculty of Letters, department of Psychology. The number of words for Turkish medium of instruction (HU Dept. of Psychology) is 6636 and for English medium of instruction (METU Dept.of Psychology) is 6515. In the first column of the table, the frequency of each linguistic feature is given and in the second column the percentages are given both for Turkish and English medium lectures. Furthermore, it is possible to observe that Dimension scores are computed by adding the frequencies of positive features (simple responses, yes/no questions, or coordination, stance adjectives and so forth and then subtracting the frequencies of negative features (relative clauses, common nouns complement clauses etc). The end result in this table refers to this mentioned score. In this table the end result is -363 for Turkish medium of instruction and -217 for English medium of instruction.

Figure 10. Dimension 1: Structural Elaboration (Interactional / Unplanned Discourse Features - Positive)
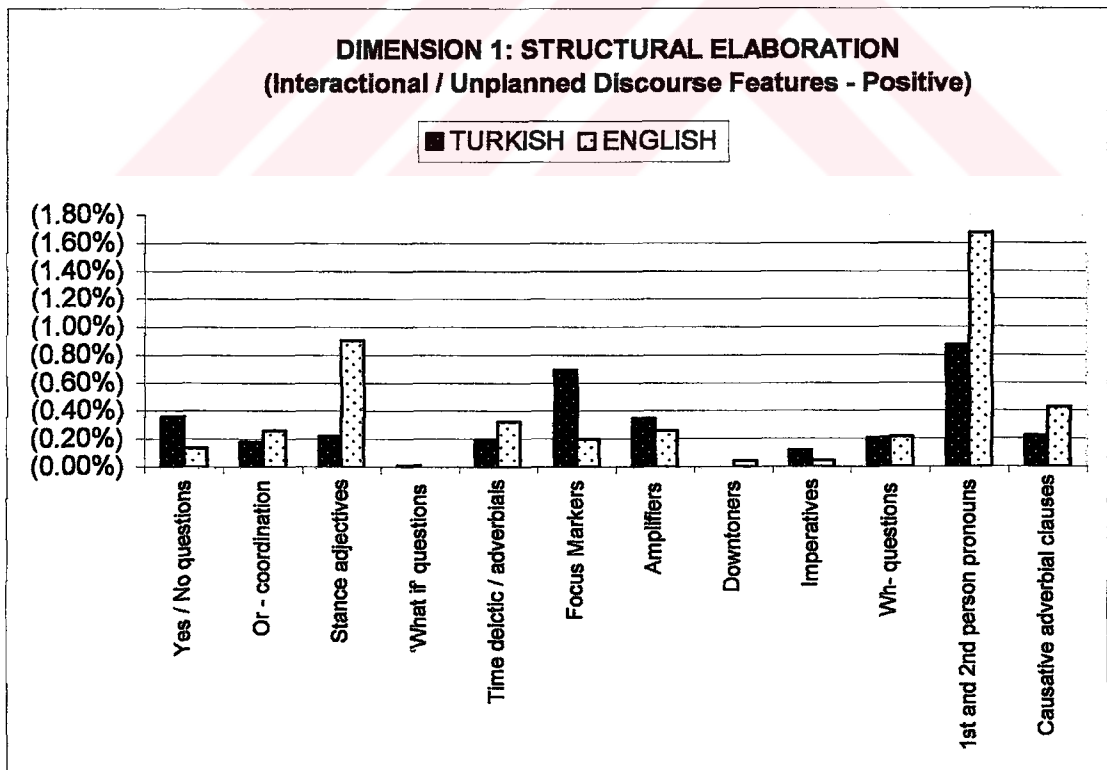
Figure 10 displays the positive features (interactional / unplanned) of Dimension 1 with their percentages. Use of personal pronouns is frequent especially in lectures with English medium of instruction the use of pronouns is 1.80%. Another frequent linguistic feature is stance adjectives 1.00%. These results are different from the results of Geological Engineering this is due to the subject matter. In the engineering lecture register the use of stance adjectives is infrequent while in the Psychology lecture register the use of stance adjectives is frequent.

Figure 11. Dimension 1: Structural Elaboration (Informational / Planned Discourse Features - Negative)
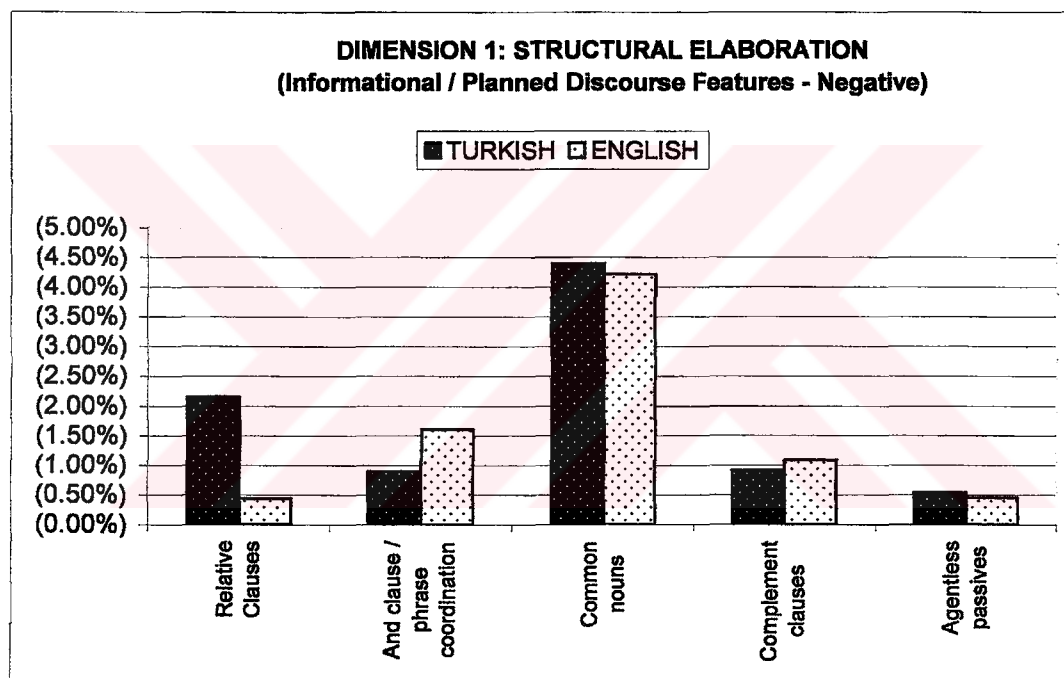
As can be seen the use of nouns are very frequent both for Turkish medium of instruction and for English medium of instruction. Use of nouns is a general characteristic of academic lecture register. Another important point is the use of relative clauses, when the medium of instruction is Turkish the use of relative clauses is higher this is similar to the findings of Geological engineering and it might be concluded that when the course is in the mother tongue the use of complex structures is frequent.

Figure 12. Dimension 1: Structural Elaboration (End Result)
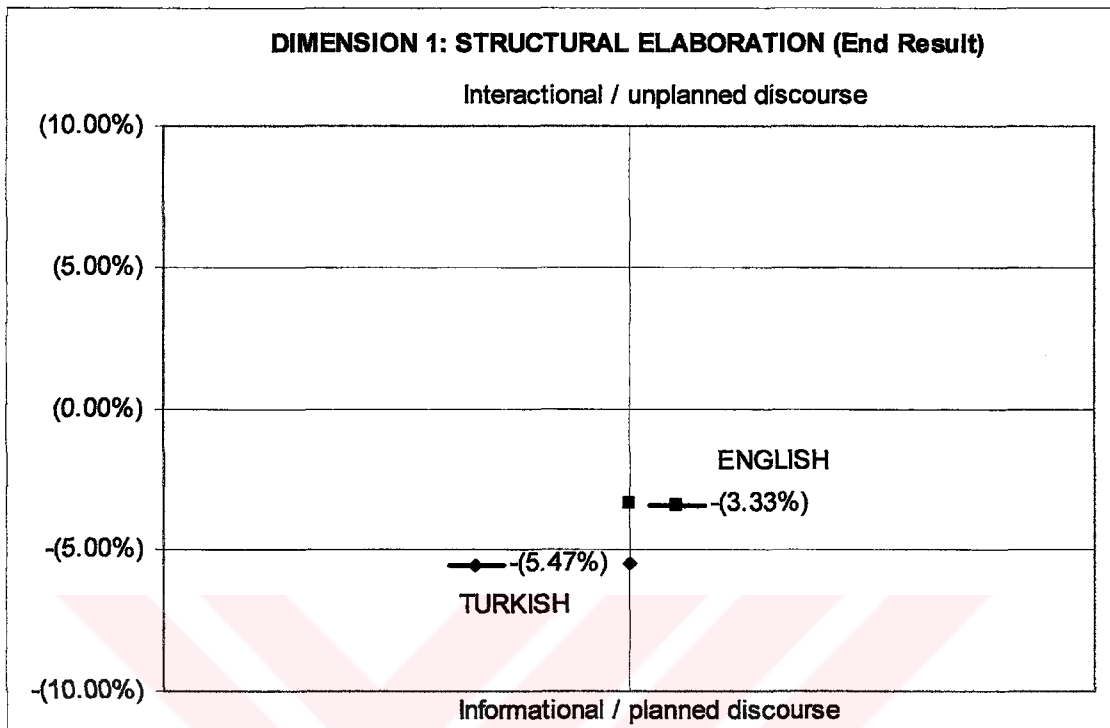
As can be observed the lectures at the department of Psychology is closer to the negative end of Dimension 1. In other words, whether English medium of instruction or Turkish medium of instruction the lectures at the Department of Psychology are informational and planned.

Table 25. Dimension 2: Argumentative vs. Reported Presentation

Argumentative Presentation Features (Positive)	TURKISH (n=6636)		ENGLISH (n=6515)	
Present tense	61	(0.92%)	160	(2.46%)
Predicative adjectives	4	(0.06%)	45	(0.69%)
Possibility modals	32	(0.48%)	35	(0.54%)
Concessive conjuncts	12	(0.18%)	5	(0.08%)
TOTAL	**109**	**(1.64%)**	**245**	**(3.76%)**

Reported Presentation Features (Negative)	TURKISH (n=6636)		ENGLISH (n=6515)	
Past tense	34	(0.51%)	18	(0.28%)
Nouns (Generic and specific)	437	(6.59%)	378	(5.80%)
TOTAL	**471**	**(7.10%)**	**396**	**(6.08%)**

END RESULT	-362	-(5.46%)	-151	-(2.32%)

As can be see from the table, at the department of Psychology when the medium of instruction is English the total number of argumentative presentational features are 245 whereas when the medium of instruction is Turkish the total number is 109. When the negative end or the reported presentational features are considered the total number for mother tongue medium of instruction is 471 and for foreign language medium of instruction is 396. When the end results are considered it is seen that the register in both media is reported and this is the general characteristics of lecture registers and the findings are parallel to the findings of Geological engineering.

Figure 13. Dimension 2: Argumentative vs. Reported Presentation (Argumentative Presentation Features - Positive)
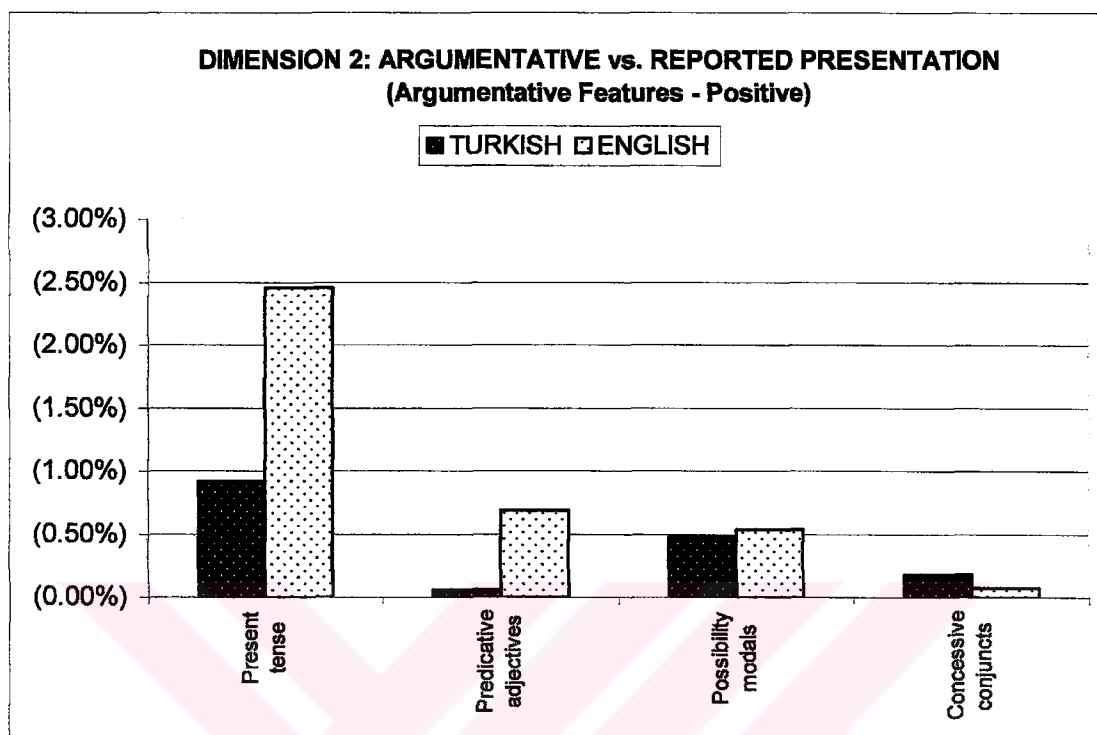
It can be observed from Figure 13 that among the linguistic features that constitute argumentative presentation end of Dimension 2 the most striking difference is in the use of present tense. When the medium of instruction is English the percentage of present tense is 2.50% and 1.00% when the medium of instruction is Turkish. Another point is the use of predicative adjectives as can be seen predicative adjectives are more frequent when the medium of instruction is English.

Figure 14. Dimension 2: Argumentative vs. Reported Presentation (Reported Presentation Features - Negative)
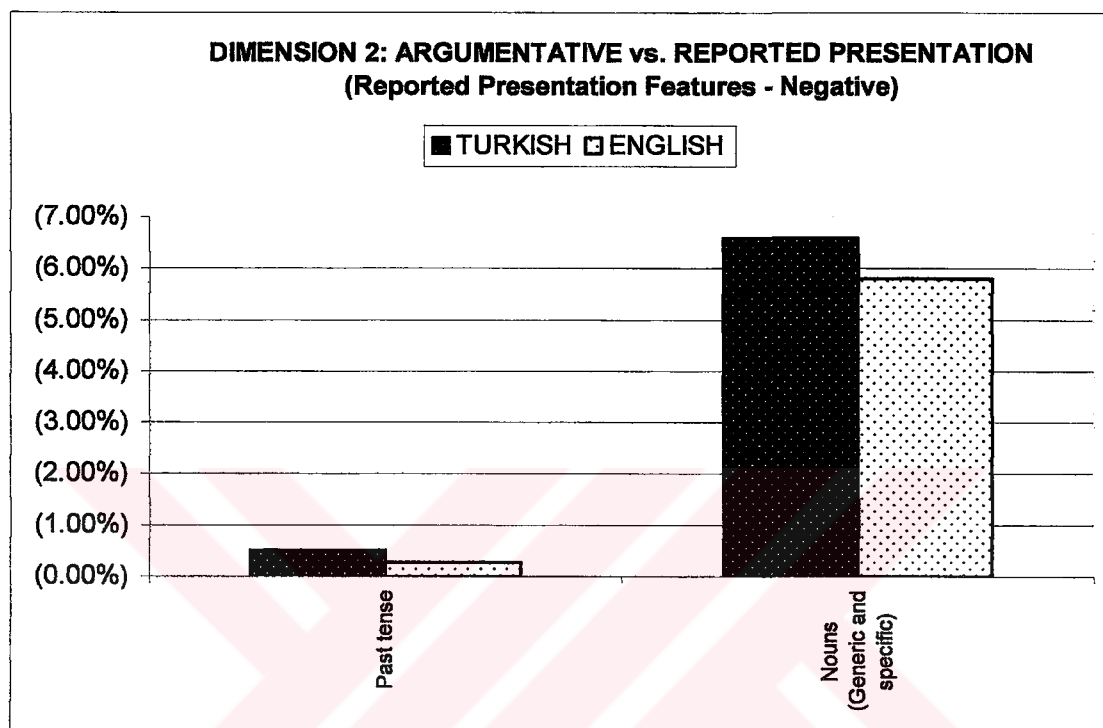
As can be seen that nouns are used frequently in the register of university lectures and there is not a considerable difference when the medium of instruction is English or Turkish. The results are parallel to the results of Geological engineering. The use of past tense is statistically insignificant.

Figure 15. Dimension 2: Argumentative vs. Reported Presentation (End Result)
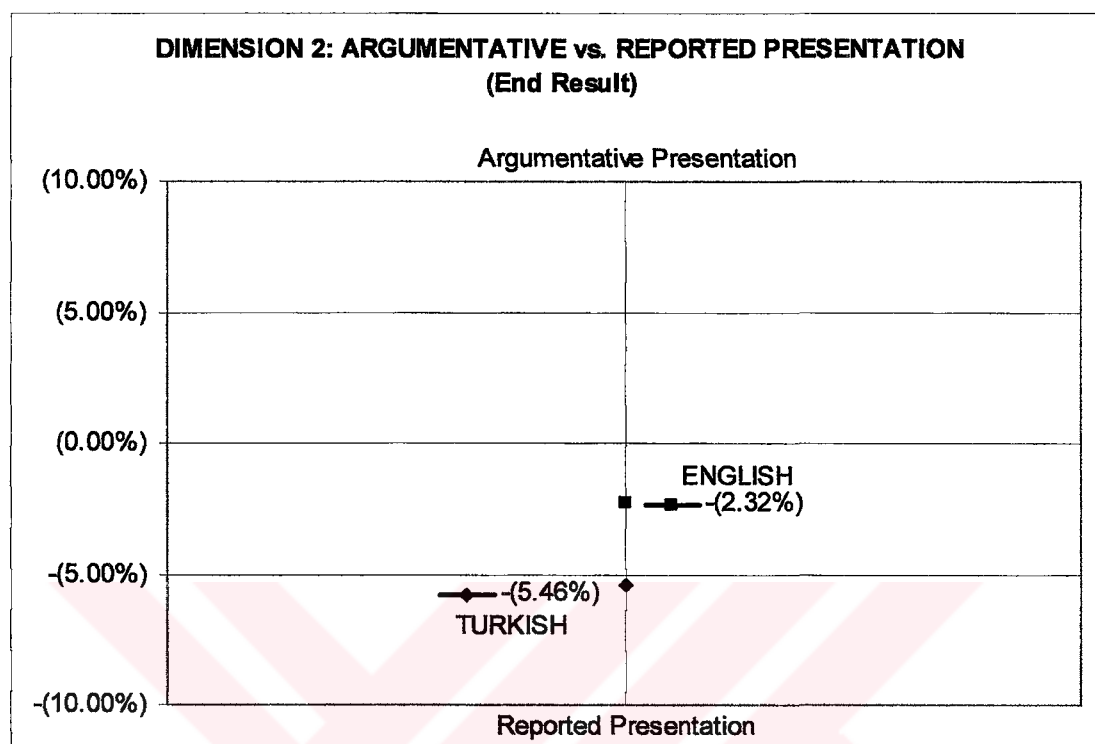
From Figure 15 it can be observed that in the register of lectures of the Psychology department the linguistic features that constitute the reported presentation end is used frequently; therefore, the register is reported whether the medium of instruction is Turkish or English.

Table 26. Dimension 3: Overt vs. Implicit Logical Cohesion

Overt Logical Cohesion (Positive)	TURKISH (n=6636)		ENGLISH (n=6515)	
Conjuncts	31	(0.47%)	63	(0.97%)
Multi-functional adverbial subordination	95	(1.43%)	14	(0.21%)
Discourse particles	25	(0.38%)	20	(0.31%)
Action verbs	15	(0.23%)	29	(0.45%)
Postposition / Preposition	163	(2.46%)	147	(2.26%)
Conditional Clause Connectors	13	(0.20%)	19	(0.29%)
TOTAL	**342**	**(5.15%)**	**292**	**(4.48%)**

Implicit Logical Cohesion (Negative)	TURKISH (n=6636)		ENGLISH (n=6515)	
Nouns	437	(6.59%)	378	(5.80%)
Possessive markers	69	(1.04%)	49	(0.75%)
Passive constructions	51	(0.77%)	40	(0.61%)
TOTAL	**557**	**(8.39%)**	**467**	**(7.17%)**

| **END RESULT** | **-215-** | **(3.24%)** | **-175** | **(2.69%)** |

When the total results are considered in the table, it is observed that when the medium of instruction is Turkish, the total number of linguistic features constituting the positive end of the dimension is 342 and the negative end of the dimension is 557. The end result is the subtraction of negative end from the positive end; it is -215 which means that there is implicit logical cohesion when the medium of instruction is Turkish. On the other hand, when the medium of instruction is English the total number of linguistic features constituting the positive end of Dimension 3 is 292 and the negative end is 467. The end result is -175 and this means that there is implicit logical cohesion when the lecture is taught in English.

Figure 16. Dimension 3: Overt vs. Implicit Logical Cohesion (Overt Logical Cohesion - Positive)
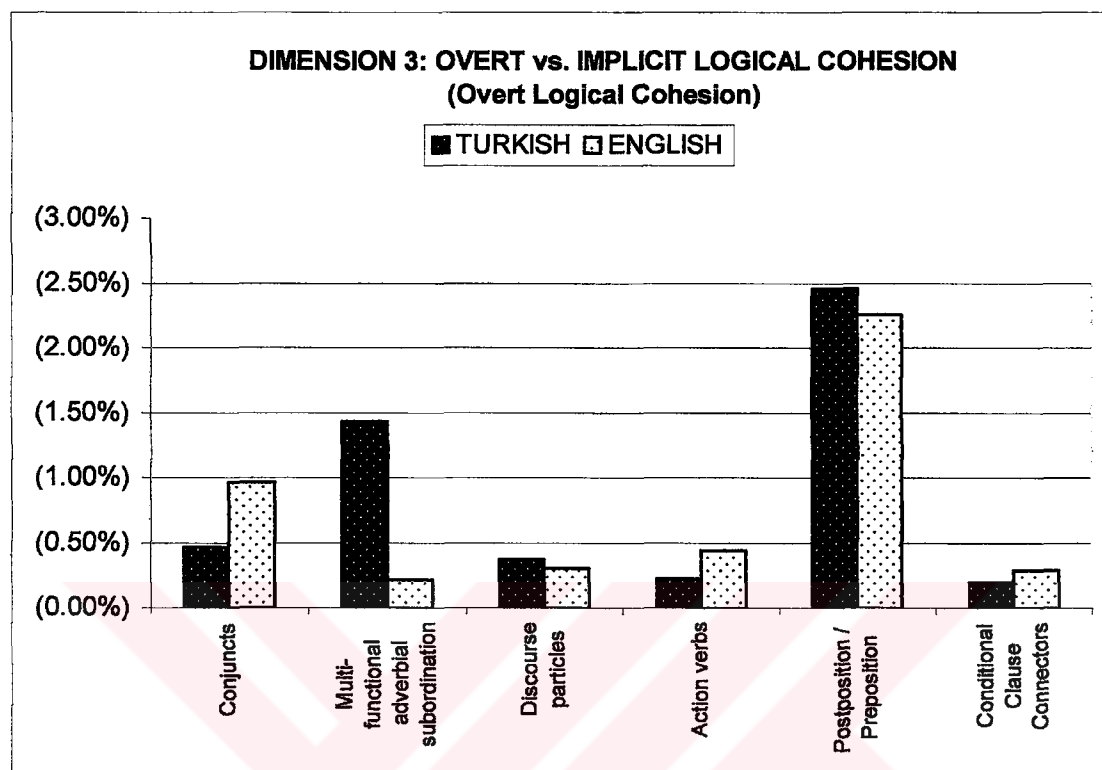
As can be seen in the figure prepositions in English are used in a high frequency in the register of university lectures when the medium of instruction is English. When the medium of instruction is Turkish post positions are used; however, they are not used as frequently as prepositions and this is due to the structure of Turkish. There is also a considerable difference between the use of multi-functional adverbial clauses in Turkish and English lectures. When the medium of instruction is English the use of multi-functional adverbial clauses is more frequent. This result is parallel with the results of Geological engineering, when medium of instruction is Turkish all types of subordination structures are used frequently; and when the medium of instruction is a foreign language lecturers avoid using complex structures. The adverbial clauses play an important role in constituting the logical cohesion as well as the informational dimension (Biber, 1988).

Figure 17. Dimension 3: Overt vs. Implicit Logical Cohesion (Implicit Logical Cohesion - Negative)
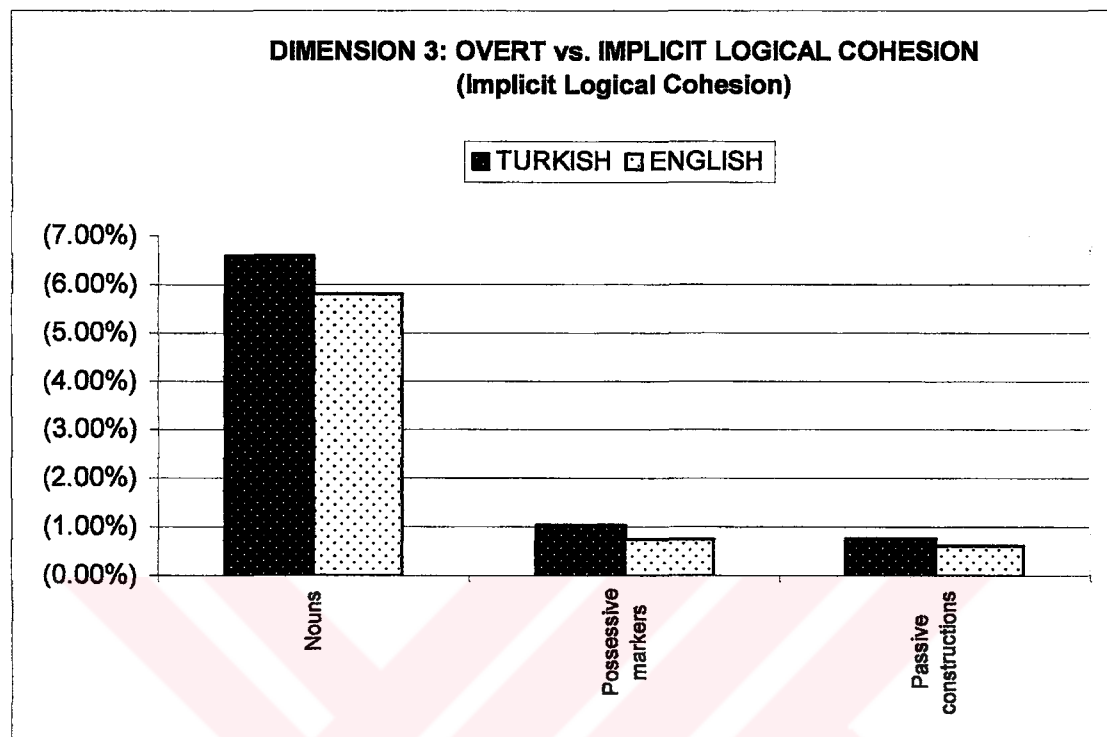
As can be seen from the figure, nouns are used frequently in lecture register. The use of passive constructions in Turkish medium of instruction is more frequent and when it comes to the use of possessive markers there is not a considerable difference between Turkish and English medium of instruction.

Figure 18. Dimension 3: Overt vs. Implicit Logical Cohesion (End Result)
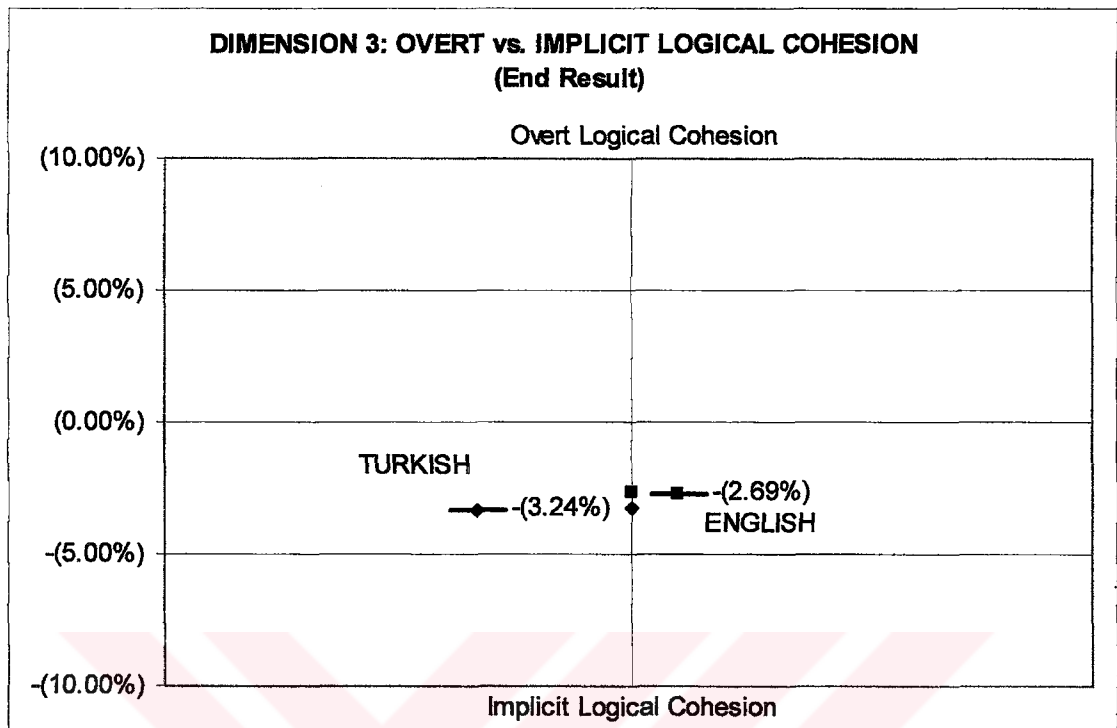
From Figure 18 it is possible to observe that in register of Psychology lectures there is implicit logical cohesion both in Turkish and English medium of instruction. This result is different from the results of the Geological engineering register. In that register, lectures in Turkish are marked as implicit logical cohesion whereas lectures in English are marked as overt logical cohesion.

CHAPTER 4
DISCUSSION

Chapter IV includes the overall discussion of both the lexico-grammatical features (microscopic analysis) and the dimensional or discoursal features (macroscopic analysis) of the lecture register with English and Turkish medium of instruction comparatively. Macroscopic approach seeks to define the overall parameters of variation among registers and it is built on the previous microanalyses to interpret the patterns in functional terms. A Microscopic approach, on the other hand, focuses on the discourse functions of individual linguistic features in particular registers. Microscopic and macroscopic analyses have complementary strengths. A microscopic analysis can pinpoint the exact communicative functions of individual linguistic features in particular registers; but it does not provide the basis for overall generalizations concerning differences among registers.

4.1 THE LEXICO GRAMMATICAL FEATURES OF THE LECTURE REGISTER WITH TURKISH AND ENGLISH MEDIA OF INSTRUCTION

Based on the findings of the analysis, it could be stated that lecture register is a special and restricted language with specific lexical and grammatical characteristics. In this section, the discussion of lexical and grammatical features will be presented to provide a clear description of lecture register.

In the analysis chapter it is clear that, contrary to the general belief, questions both in the Turkish and English corpus do not have a significant role. Especially when the medium of instruction is English questions are rare; there are only 35 *Wh-questions*. On the other hand, in the Turkish corpus, the most frequent question type is *Wh-questions*; there are 88 *Wh-Questions* (See Table 27). It can be argued that when the lecture is in Turkish, lecturers ask more *Wh- questions* and there is more participation in class

because asking and answering questions in the mother tongue is easier both for the students and the lecturers. *What if questions* are the most important type of questions in terms of interaction; however, in the English corpus there is only one what if question wheras in the Turkish corpus, there are 24 *what if* questions.

Table 27. Frequency and Rate of Lexico-Grammatical Features

	TURKISH (n=12729)		ENGLISH (n=11687)	
Questions	193	(1.52%)	61	(0.52%)
Coordinations	106	(0.83%)	189	(1.62%)
Adjectives	47	(0.37%)	117	(1.00%)
Time Adverbials	43	(0.34%)	51	(0.44%)
Focus Markers	79	(0.62%)	17	(0.15%)
Lexical Classes	234	(1.84%)	221	(1.89%)
Imperatives	37	(0.29%)	26	(0.22%)
Pronouns	366	(2.88%)	224	(1.92%)
Subordinations	619	(4.86%)	263	(2.25%)
Nouns	783	(6.15%)	665	(5.69%)
Passives	96	(0.75%)	95	(0.81%)
Tenses	232	(1.82%)	373	(3.19%)
Possibility Modals	59	(0.46%)	54	(0.46%)
Prepositional and Postpositional Phrases	236	(1.85%)	485	(4.15%)
Action Verbs	95	(0.75%)	91	(0.78%)
Possessive Markers	91	(0.71%)	61	(0.52%)

In terms of coordination, what is important is that in English, the 'and' coordination is used more frequently than in Turkish. The reason may be that as Camicitolli (2004:41) states "the non native speakers often overused the coordinating conjunction 'and' as a generic discourse marker to substitute clearer topic shifters". It seems that 'and' is used as a discourse marker rather than a real coordinator. The use of coordinators is considered as a contribution to expand informational content of lectures.

The use of adjectives and adverbs are infrequently used both in the English and the Turkish corpus. In fact adjectives also contribute to the elaborated presentation of information. Similar to adjectives and adverbs, the use of focus markers are not markedly significant neither in the Turkish medium lectures nor in the English medium lectures.

Conjuncts are important discourse structuring devices and they have been found to have a positive effect on lecture comprehension, particularly with audiences of non-native students (Chaudron and Richards, 1986). Downtoners and amplifiers are remarkably low in the English corpus because the lecturers are non-native speakers and they might have difficulty in using them.

In Turkish corpus pronouns are employed frequently; they constitute 2.88% of Turkish lecture register. In the department of Geological engineering where the medium of instruction is Turkish, there are 308 personal pronouns. This may indicate that there is a high degree of involvement in the lectures. In English, there are totally 224 (1.92%) personal pronouns. Due to the structure of Turkish, it is natural to use more personal pronouns, because in Turkish, pronouns can be deleted and then recovered from the inflection of the verb.

Subordination reflects the structural complexity. It is possible to conclude that lectures with Turkish medium of instruction have complex structures. Subordinating devices constitute 4.86% of the whole Turkish corpus. On the other hand, the percentage of subordinating devices in the English corpus is 2.25 %. Among subordination clauses, the most frequently used form in the Turkish corpus is relative clauses and adverbial clauses. Complement clauses are found to be the less used form of subordination in the sample. In the English corpus, on the other hand, the most frequently used form of subordination is complement clauses. The findings are consistent with the assumption that relative clauses are used to convey information; therefore, they are important for academic texts whose aim is to provide information (Biber, 1988). Furthermore, adverbial clauses are also important devices for academic lectures because "they require an interaction among the discourse participants since they express the interactional propositions like reasons, purposes, conditions or temporal settings"(Biber, Conrad and

Reppen 1998:140); therefore they are commonly used in the lectures. All these subordination devices are low in the English corpus because lecturers are non native speakers and they might avoid using complex structures with the fear of making a grammatical mistake; therefore they prefer to use simple structures rather than complex ones.

Nouns are the most common lexical groups in the corpus. This table indicates that nouns are employed both in the Turkish and English corpus. This finding suggests that lectures have highly abstract informational focus. Especially the use of specific nouns is common in both corpora. The common use of nouns indicates the abstract and informational nature of lecture register.

In both corpora, the number of passive constructions is nearly the same. The use of passives constitutes nearly 1% of both Turkish and English media lectures. It might be argued that passives are not markedly used in lecture discourse.

Since the corpus is an example of spoken discourse not all sentences or utterances in the sample are verbal sentences. However what is striking is that in both corpora the present tense is employed more frequently than the past tense. In other words in lecture register, present tense is commonly used. This result might indicate that the information presented is given importance and in lecture discourse general facts and events are emphasized by using present tense.

In both corpora the possibility modals have the same role and they are employed in the same rate (0.46%). Since possibility modals indicate the speaker's subjective evaluation, they are not commonly used in the lecture discourse.

In English, prepositions are important devices of packing high amounts of information and for integrating information into idea units; therefore, they are important for lecture register. In lectures with English medium of instruction, the use of prepositions constitutes 4.15% of the whole corpus, therefore they are markedly important. Postpositions in Turkish have similar properties but postpositions are not common in Turkish as prepositions are in English therefore it is natural that they are not as frequent

as prepositions. In the Turkish corpus, postpositions constitute 1.85 % of the whole corpus.

Action verbs constitute nearly 1% of the whole corpus therefore; it may be argued that the use of action verbs is not significant for lecture register and they do not occur with high rates.

Possessive markers are insignificant for lecture registers they constitute less than 1% of lecture register both with Turkish and English medium of instruction. In Turkish, the use of the possessive marker is more frequent due to the nature of Turkish. In Turkish, although the personal pronoun with the possessive suffix is omitted it can be recovered from the genitive suffix, therefore during the counting process they have been counted in the genitive suffix form.

4.2 DISCOURSAL FEATURES OF THE LECTURE REGISTER WITH TURKISH AND ENGLISH MEDIA OF INSTRUCTION

This section deals with the discussion of the discoursal features of academic lectures with Turkish and English media of instruction. The lectures are from the departments of Geological engineering and Psychology. The study was undertaken in two different universities, namely, METU and HU. In Metu, the medium of instruction is English but both the lecturer and the students are Turkish and their mother tongue is Turkish. In other words, there is a uni-cultural atmosphere. Furthermore, English is a foreign language both for the lecturer and the students.

The analysis here uses the Multi-Dimensional (MD) register variation approach. The approach is based on the centrality of linguistic co-occurrence in analyses of text variation. In the MD approach, linguistic co-occurrence is analyzed in terms of underlying dimensions of variation, with the explicit assumption that multiple dimensions will typically be required to adequately account for the range of linguistic variation among registers in a language. Three dimensions are identified as significant for this study. These are; 1) involved (unplanned) vs informational (planned), 2) Argumentative vs reported 3) overt vs implicit logical cohesion. All these dimensions

have both positive and negative features. Positive and negative features within a dimension are related to one another. Biber (1988:10) states, "When a text has several occurrences of the features with negative weights, it will have few of the features with positive weights and vice-versa". That is, these two groups represent sets of features that occur in a complementary pattern. The interpretation of the dimensions is based on the assumption that co-occurrence reflects shared function; that is, features co-occur frequently in texts because they serve shared, underlying communicative functions associated with the situational contexts of the texts.

In this study, the distribution of these 31 linguistic features across 16 texts and nearly 25.000 words were analysed. The corpus was the transcription of 16 lectures and the whole corpora were transferred into computer and the frequencies of all linguistic features have been counted by hand since there is not an access to a tagger and there is not a tagging program written specifically for Turkish.

4.2.1 Dimension One: Involved (Unplanned) versus Informational (Planned) Discourse

Dimension one characterizes personal involvement versus informational exposition. Dimension one also distinguishes between unplanned and planned discourse types.

There are two groups of features of this dimension; positive and negative features. Positive features are the markers of Interactional/Unplanned discourse, whereas negative features are the markers of Informational/Planned discourse. To determine these features necessitates microscopic analysis of the text. These are the lexico-grammatical patterns. The major co-occurring features associated with Dimension 1 are;

- Interactional/Unplanned (Positive features)
  Yes/No Questions
  Or-coordination
  Stance adjectives
  What if Questions
  Time deictic (Time adverbials)

Focus Markers

Amplifiers

Down toners

Imperatives

Wh- questions

1st and 2nd person pronouns

Causative adverbial Clauses

- Informational/Planned (Negative Features)

Relative Clauses

And clause/phrase coordination

Common nouns

Complement clauses

Agentless Passives

Here, the positive features like *yes no* questions indicate an associated interactive function on this dimension. First and second person pronouns are also highly associated with interactiveness, because they refer directly to the addressor and addressee (Biber, 1988). In contrast the negative features are associated with an explicit and elaborated presentation of information. Just like direct WH questions, personal pronouns require a specific addressee. In addition, direct questions require a specific addressor present in the discourse. Among positive features, causative adverbial clauses express a justification for an action; therefore they are used in involved discourse. Many of these features reflect clause complexity and various types of structural embedding like relative clauses or complement clauses. These are all devices for specifying and elaborating the presentation of information. Nouns are also explicitly marked for informative texts.

The results show that along with Dimension 1, the most significant discoursal feature of academic lectures is its being an informational and planned discourse. Also, the structural elaboration dimension shows that there is a limit on the extent to which lecture register like other spoken registers can be structurally elaborated, even when they have markedly informational purposes. This result is natural since the primary

communicative purpose of academic lectures is to provide information. Furthermore, in terms of production circumstances, it might be stated that academic lectures are planned registers. Information is carefully organized prior to its presentation. In fact, this is usually an attribute of written registers; at this point, although being a spoken register, academic lectures show the characteristics of a written register. Since the medium of instruction is a variable in this study, it is also possible to say that when the medium of instruction is English, usually the lectures are more planned and less interactional. The logic behind this result seems to be that since English is a foreign language for the lecturers they tend to plan the lecture more carefully or in detail due to language barrier.

Another variable of this study is the chosen departments or fields. Geological engineering is chosen as the representative of engineering lecture register and Psychology department is chosen as the representative of the register of social sciences. It is assumed that in terms of personal involvement and informational exposition the lecture register may vary in different fields. If Figures 19 and 20 are compared it is obvious that the lecture register may vary due to the medium of instruction as well as the subject matter or the field of study.

Figure 19. Dimension 1: Structural Elaboration (Geological Engineering Lecture Discourse)

DIMENSION 1: STRUCTURAL ELABORATION (End Result)
Interactional / unplanned discourse
(10.00%)
(5.00%)
TURKISH (3.04%)
(0.00%)
ENGLISH (3.54%)
-(5.00%)
-(10.00%)
Informational / planned discourse
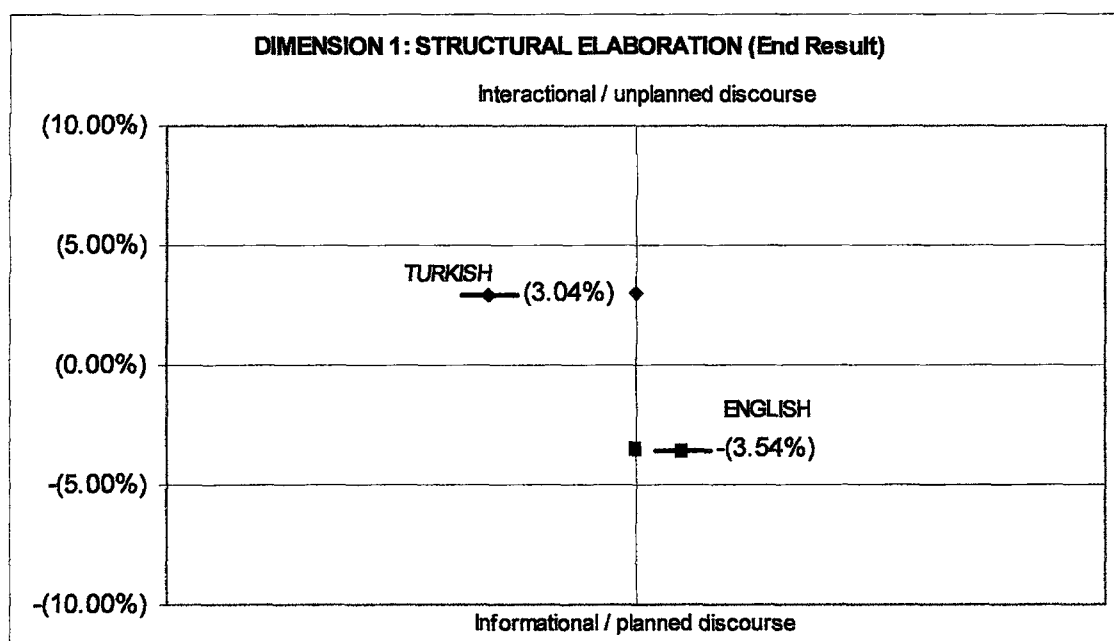
First of all, it should be emphasized that whatever the medium of instruction is, the lecture register is relatively informational; in other words, in between these two extremes lecture is an intermediate register. Nouns, adjectives and prepositional phrases usually co occur in academic texts to provide a dense integration of information. This dimension is interpreted as primarily reflecting author/speaker purpose; which is personally involved expression versus informational exposition. Therefore, this table shows that in the engineering register, when the medium of instruction is Turkish, there is more involvement and interaction and when the medium of instruction is English there is less interaction in the lectures. Furthermore, it is also possible to say that when the medium of instruction is English, the discourse is more planned. These characteristics can be observed in the given examples;

Example (April,12 2004 HU.Geological Engineering)

İmza atmayan var mı arkadaşlar? Geçen derste çözdüğümüz problemlerle ilgili takılan var mı arkadaşlar? Şimdi kil zeminlere geçiyoruz bunun güzelliği şurada, *sizin* çalışacağınız kil aynı zamanda, içsel sürtünme açısına da sahipse *ne yapacaksınız?* Biraz önceki eşitliklerde *gördünüz*, yok böyle bir olay yoktur. Ama şu gördüğünüz eşitliklerde bir ifade var nedir bu? Bir sınırlama var, sığ şerit temeller için önerilmiş. Peki ya temelin şekli değişikse *ne yapacaksınız?* Yine katsayı *önemli*, yani B bölü B eşittir *yaklaşık* sıfır ise, Şimdi eşitliğe bakalım NC bunu *biliyorsunuz* kohezyon ile ilgili. N gama boyutsuz taşıma faktörleri, bu eşitlikte C kohezyon, Y birim ağırlığı, B sömelgenişliği, q ise örtü yükü. Burada *dikkat edin* piyasada ileride başımıza dert açarsınız *niye* bu iki eşitliğe bir *bakın* burada Q'yu değiştirsem ya da N gama'yı ya da C'yi *değiştirsem ne olur* 1500 en azından taşıma gücü hesaplarız. Dolayısıyla *sizin* inşaat mühendisine *sormanız* lazım arkadaş, *hangi* derinlikte *hangi tür kenarlı yapacağım?*

Example (March,25 2004 METU Geological Engineering)

Now, I'd like to move to another concept, *which* is the activity fugacity. We said *that* as *geochemists* the *actual materials* we deal with are *rocks* and *minerals* and the *information,* the *chemical information* are expressed in *concentration units*; but while dealing with a chemical equilibrium we use another form of concentration rather than mole fraction we use activity. Activity is our total concentration. Activity is defined as a measure of a concentration of a reactant or product in a reaction. The relationship between activity and concentration *is expressed* by the equation: activity is equal to concentration times the activity coefficient. We said *that* we are dealing with *solutions,* with solid or *liquid solutions, and* we are dealing with *gaseous solutions.*

Figure 20. Dimension 1: Structural Elaboration (End Result) (Department of Psychology)
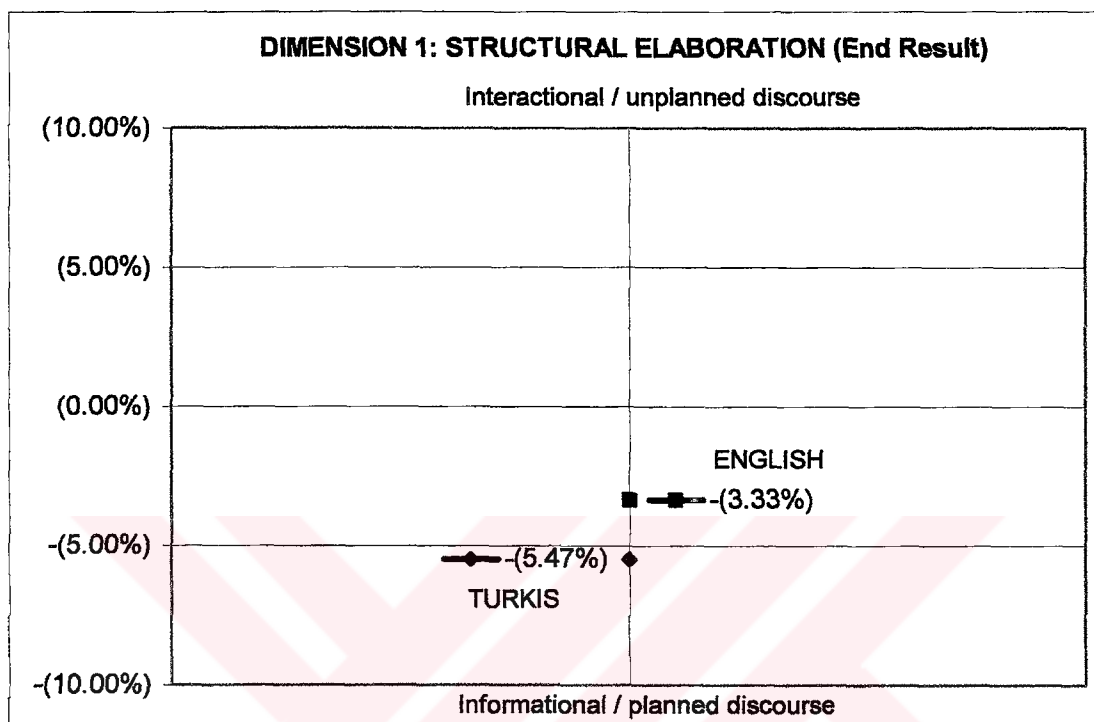
In the Department of Psychology, both with English and Turkish medium of instruction, the register is closer to the informational and planned end of the dimension1. Furthermore, the medium of instruction does not have a significant effect. This might be due to the subject of that particular recorded hour; because in recorded classes sometimes the lecturers are more active and the participants are not involved due to the subject. When compared to the engineering register, when the medium of instruction is English both registers are quite similar; (-3.54% and -3.33%). This result can be interpreted as follows; when the lecture is in a foreign language, whatever the subject matter is, the register is usually planned and informational. On the other hand, when it comes to the lecture in the mother tongue, it can be more interactional as can be observed in Figure 20.

4.2.2 Dimension 2: Argumentative vs. Reported Presentation

In this dimension, the term 'argumentative' refers to a qualified presentation of information, comparing and contrasting various alternatives, while reported styles simply present the facts with little consideration of alternatives possible. In addition to the present tense, the major positive features on Dimension 3 are adjectival forms and qualified statements (possibility modals, concession conjuncts). The negative features,on the other hand, are the past tense and specific and generic nouns. Dimension 2 shows a basic opposition between the present tense and the past tense. However, as indicated by the co-occurrence of past tense verbs and future tense modals (the negative features), this dimension does not represent a simple difference between present and past events (Biber, 1988). The positive features (possibility modals, concession conjuncts and conditional clauses) represent present time, with frequent details and qualifying conditions and concessions and negative features (proper nouns, generic nouns) represent projected time (past or future) with a focus on human referents.

- Argumentative (positive features)
  Present tense
  Predicative adjectives
  Possibility modals
  Concession conjuncts

- Reported (negative Features)
  Past Tense
  Nouns (generic and specific)

Figure 21. Dimension 2: Argumentative vs. Reported Presentation (End Result) (Geological Engineering)
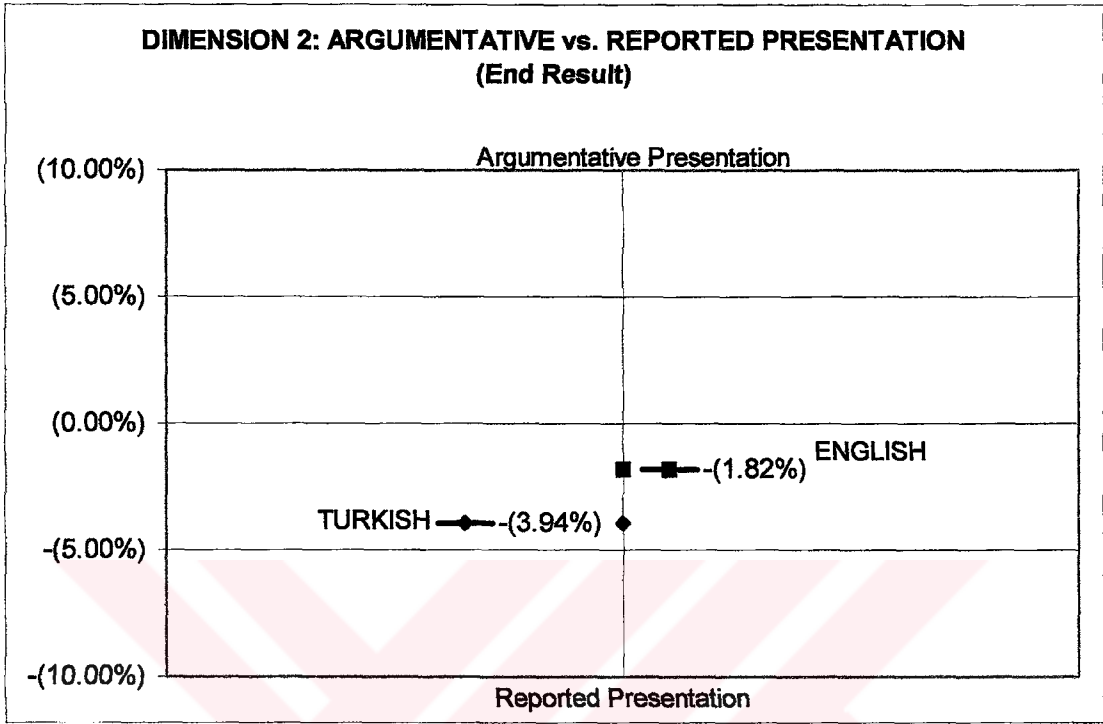
Along with Dimension 2, the most striking discoursal feature of university lectures is that they are characterized by a heavy reliance on past tense forms, proper nouns and specific nouns combined with markedly infrequent present tense forms, adjectives and concessive conjuncts. In other words, it is possible to say that Geological engineering lecture register is characterized by reported style whether the medium of instruction is English or Turkish. It depends on the presentation of facts. These discoursal features can be observed from the following examples;

Example (April,5 2004 HU)

Evet, arkadaşlar şimdi ne *dedik, taşıma kapasitesi* önemlidir *dedik* bir de *oturma miktarı dedik* değil mi? Şimdi *oturmayı gördük*; işte kil tipi zeminlerde konsolidasyon *oluyordu* vesaire *dedik* diil mi, *kumlarda* da yapı bitinceye kadar bir *oturma bekleniyordu, yapı* bittikten sonra *oturma oluyordu*, şimdi gelelim *kaya türü zeminlerdeki taşıma kapasitesine, kaya türü zeminlerde* inşaa edilecek *zeminler* için *değerlendirmelerimiz* neler olacak ona bakalım. Aslında *kaya türü zeminler* arkadaşlar böyle çok aşırı parçalanmış, kırılmış, *küçük parçalara* ayrılmış, ileri derecede bozulmaya uğramış *malzemeler* değilse, normalde *yapı temelleri* için mükemmel *malzemeler* olarak kabul edilir, yani, hemen hemen *betonun* ortalama *sıkışma dayanımı*, işte *betonun kalitesine, grandömetresine*, kullanılan *malzemeye* vesaireye göre değişmekle birlikte, 40-50

megapascalı aşmaz *betonun* şeyi ee tek eksenli *sıkışma dayanımı* ama bunun yanında *kayaların* birçoğu bu değerin üzerindedir.

Example (March, 11 2004 METU)

And we *had an example* on Tuesday just to show how we use *CP*'s to calculate *the reaction enthalpies* at elevated temperature and remember again that in *these examples* we provided the *CP values* for the *substances* involved in the *reactions*. What if *the CP values* are not provided directly but rather in this way giving *the constant a,b* and c for *the substances*. Now let us see how we calculate *the reaction enthalpies* using *Cp* as higher or another different *temperature*. So, let us say that in cases, where heat capacity data are provided indirectly, that is to say, providing *the coefficients* a, b, c rather than providing *direct CP values* for *the substances*, the determination of *enthalpy change* or requires the use of *equations* three point thirty-two and three point thirty-three and that's *one example*.

Figure 22. Dimension 2: Argumentative vs. Reported Presentation (End Result) Department of Psychology
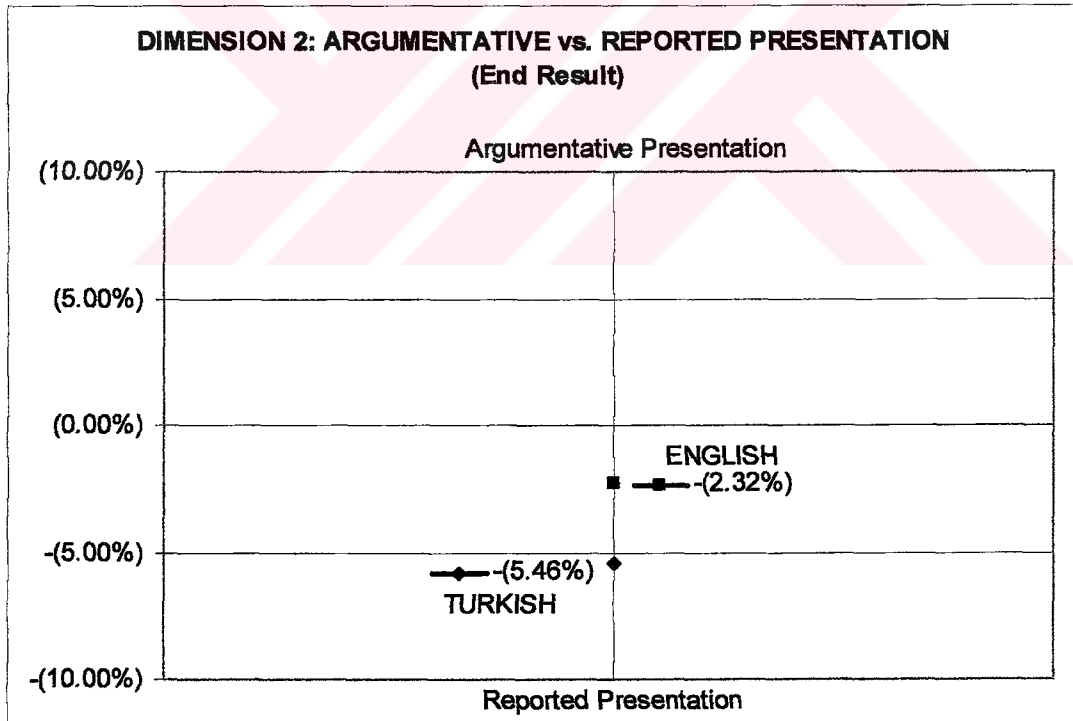
Very similar to Geological Engineering lecture register, Psychology lecture register is characterized by the reported style whether the medium of instruction is English or Turkish. It depends on the simple presentation of facts with little consideration of alternative possibilities.

The dimension Argumentative versus Reported Presentation of Information relates primarily to discourse purpose and is thus independent of mode consideration (oral and literate characterization). The purpose in university lecture register is to give information; however, it is possible to present information with comparing and contrasting various alternatives rather than simply reporting the facts. When the medium of instruction is English, it is possible justify this result because of the language barrier; however when the medium of instruction is Turkish, the lecture register is still characterized by reported style. The reason behind this result is most probably the lecture delivery style. In the corpora the delivery technique is usually 'rhetorical style'. There is no reading but not actual discussion as well. Usually in the lectures, the topic is planned and there is little interaction between the lecturer and the students. In these corpora the lectures exhibit what Swales, (1990in Camicioletti 2004) refers to as the 'open style' in spoken academic discourse. "This is characterized by strong signals of speaker's presence; context bound references and noun groups that reflect the specialized vocabulary of the topic at hand" (Camicioletti 2004:44).

4.2.3 Dimension 3: Overt vs. Implicit Logical Cohesion

Positive features mark the overt logical cohesion in the discourse and negative features mark the implicit logical cohesion in the discourse. The lexico-grammatical patterns that are going to be analyzed in order to disclose the discoursal features along dimension 3 are:

- Overt Logical Cohesion (Positive Features)
  Conjuncts
  Multi-functional Adverbial subordination
  Discourse particles
  Action verbs
  Post position/preposition
  Conditional Clause Connectors

- Implicit Logical Cohesion (Negative Features)
  Nouns

Possessive Markers

Passive constructions

The positive features in this dimension relate primarily to textual cohesion, specifying the logical relations among propositions. Clause connectors and conjuncts clearly have this function, including explanative connectors such as 'because', explanative conjuncts such as *'therefore'* and general discourse connectors like, 'and', 'but'. Furthermore, coordinate connectors and conditional connectors ('if') have the same function. Adverbial subordination specifies a particular relation between the main clause and subordinate clause propositions. All these devices result in an explicit marking of logical cohesion, overtly specifying the relations among clauses. The co-occurrence of expressions with these positive features shows that there is an explicit marking of logical cohesion. The negative features are fewer in number, but they show a nominal as opposed to a verbal style (nouns, possessives, adjectives) and a frequent use of passive clauses as opposed to active clauses. Most importantly, among negative features, none of them marks logical relations.

The results show that along with Dimension 3, the significant discoursal feature of university lectures is that they are marked with implicit logical cohesion. Logical cohesion markers show how the lectures are structured and they guide listeners through the lecture therefore it is important for lecturers to use them. However, cohesion in spoken discourse is also established through paralinguistic features and non-verbal channels such as intonation, gesture and eye gaze, therefore, using overt logical cohesion markers is not the only way of guiding the lecturers. In some studies, (Khuwaileh, 1999; Olsen and Huckin, 1990; Thompson, 1994), the use of logical cohesion and all other discourse structuring devices has been found to have a positive effect on lecture comprehension, particularly with audiences of non-native speakers. In a study done by Williams (1992), it is concluded that non native teaching assistants need to make more explicit use of discourse markers and connectors to compensate for other problems relating to pronunciation and grammatical accuracy. Therefore, for this particular study, it is hypothesized that when the lectures are in L1, overt logical cohesion is less frequent compared to the lectures in a foreign language, specifically, English.

Figure 23. Dimension 3: Overt vs. Implicit Logical Cohesion (End Result) for Department of Geological Engineering
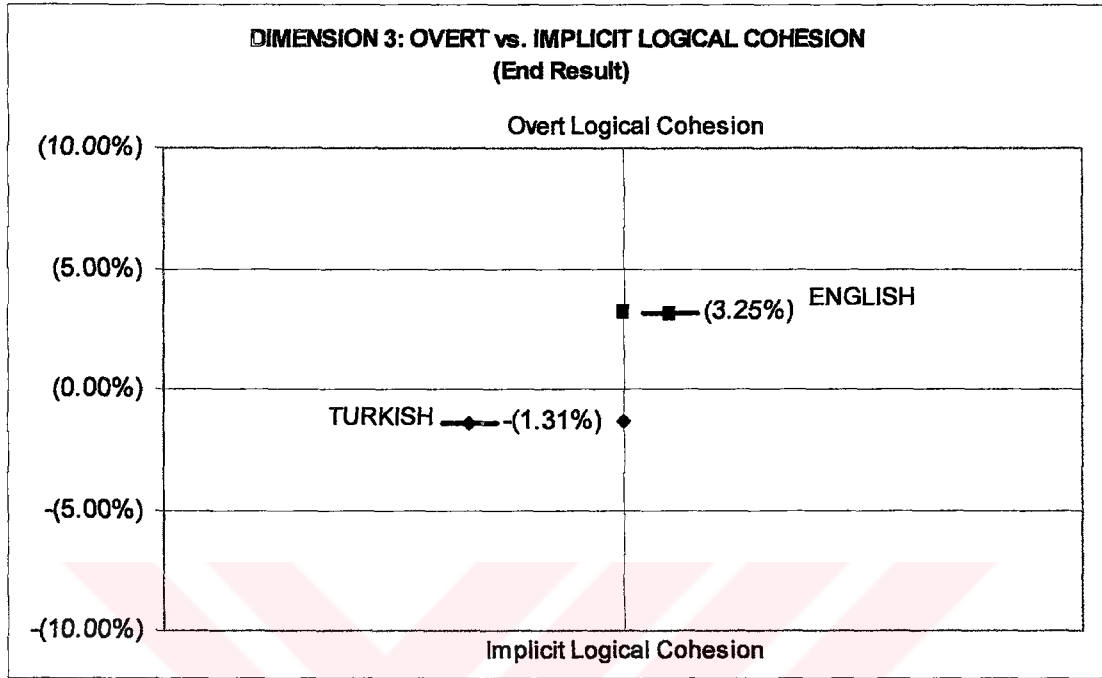
In Figure 23 it can be observed that when the medium of instruction is English in Geological engineering, there is extensive overt logical cohesion and when the medium of instruction is L1 there is implicit logical cohesion. This result supports the hypothesis. The discoursal features can be observed in the following examples;

Example (April, 5 2004 HU)

Temel nasıl *yenilir*, yani durup dururken üzerine binayı *kondurduğumuz* zaman, ya da işte yükü *koyduğumuz* zaman temel nasıl yenilir, alttaki temel? Temel *dediğim* işte alttaki doğal malzeme kaya, zemin vesaire nasıl *yenilir bakalım. Baktığımız* zaman arkadaşlar,(grafik üzerinde) şu zımbalama şeklinde yenilme *olabilir*, bu da bakın şu noktadan şöyle bir çatlak beliriyor ve şu aradaki şeyin aşağıya doğru çökmesi sonucunda veya bir tarafa yatması sonucunda temeli yatırır, bozar, kırar bu da üstündeki binayı yıkar atar, değil mi? Zımbalama nasıl olabilir? Zımbalama şu şekilde çatlakların gelişmesi şeklinde *olabilir* ve bunlar da sağa sola yine, beton temel altındaki temel zemininin hareketine sebep olur ki bu da temel üzerindeki yapıya zarar verir. Bir de temel zemin altındaki malzeme *parçalanabilir*, ileri derecede parçalanmalar *oluşabilir* ve bunlar, temellerin ve binanın hasar görmesine sebep olur. Bir de kamalanma *gerçekleşebilir*,

Example (April, 5 2004 METU)

Well the solution is, first *of* all please note that since CP is expressed in terms of, in units of Joule per mol per degree Kelvin, we have *to* convert the temperature values *from* degree Celsius *to* Kelvin, *So then* we have two temperatures twenty five degree Celsius which is equal *to* twenty five plus two hundred and seventy three that is two hundred and ninety-eight degree Kelvin and three hundred degree Celsius is equal *to* five hundred and seventy-three Kelvin. Delta H is equal *to* a plus bT minus cT power minus two times dT *when going from* the temperature *of* reference *to* the temperature of interest. That was one *of* our earlier equations. *Okay,* I think that was given in equation number three point thirty two. *So* what comes out *when* we take these out *of* the integrated sign we have a times t minus T ref plus *over* two times T square minus T ref square plus C times one *over* T minus one *over* T ref. *So* here the temperature *of* reference and the temperature *of* interest are known.

Figure 24. Dimension 3: Overt vs. Implicit Logical Cohesion (End Result) for Psychology Department
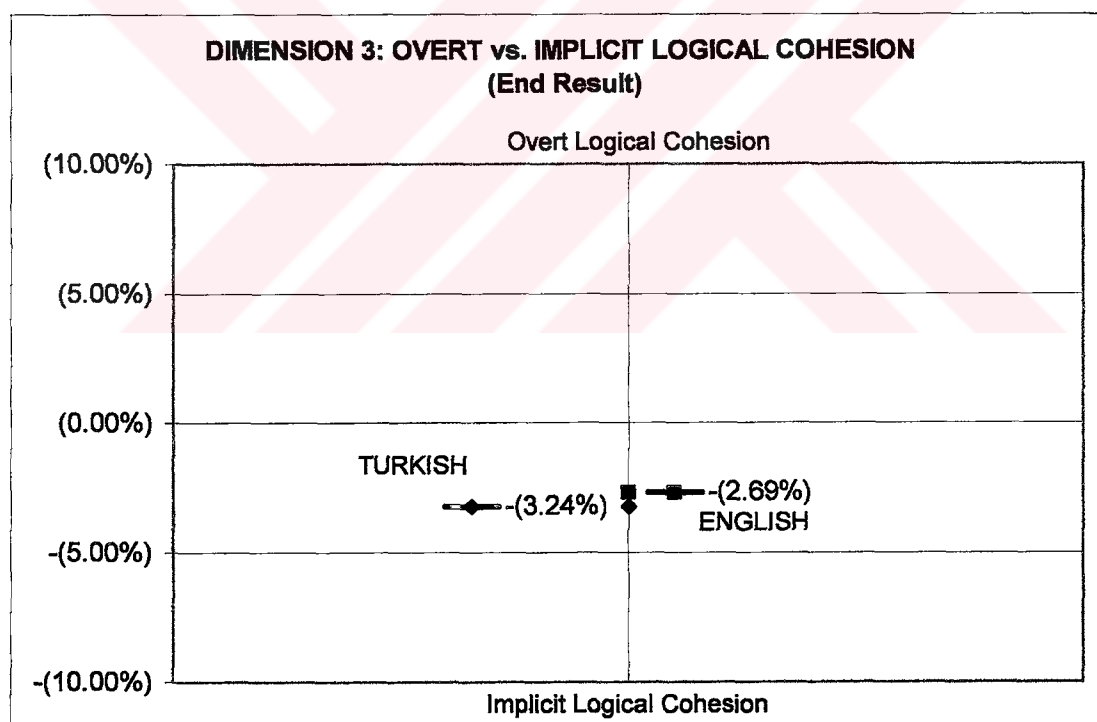
In the Psychology department, both in L1 and L2 lectures, there is implicit logical cohesion. Indeed, Dimension 3 represents the overt marking of logical cohesion versus other discourse organizations that rely on implicit relations among propositions; the label 'Overt vs. Implicit Logical Cohesion' reflects this interpretation. Due to this, it is possible to conclude that Psychology as a field may not necessitate overt logical

cohesion. In Geological engineering, for example, when the subject is the implementation of an experiment, overt cohesion devices are commonly used, because the text itself presents a sequence of events, and students require an overt specification of logical relations since they have only a class hour for comprehension, furthermore, if there is problem solution process it is important to specify the relations among the steps. On the other hand, in the Psychology department, subjects are presented with implicit logical cohesion, because there is usually a text in front of the students and usually they have an opportunity to infer logical cohesions. Since, non native lecturers need to make more explicit use of discourse markers and connectors to compensate for other problems relating to pronunciation and grammatical accuracy; it might be possible to say that the lecturer in the Geological engineering department might feel insecure and use more cohesive devices.

CHAPTER 5
CONCLUSION

The major aim of this study was to analyse lecture discourse in English and Turkish medium universities comparatively. Furthermore, it was intended to describe the lexico-grammatical features of language in different academic discourse communities with Turkish and English media of instruction. The study identified the discoursal features of the lectures with Turkish and English media of instruction in terms of planned versus unplanned or interactional versus informational discourse, argumentative versus reported presentation and overt versus logical cohesion comparatively.

Generally, it can be concluded that the most significant discoursal characteristic feature of academic lectures is its being informational and planned discourse. Although academic lectures represent a spoken genre, they show literate characteristics for shared knowledge among participants and information load. Still, the register of academic lectures has its own specific lexical, grammatical, and discoursal peculiarities.

Considering the findings of the microscopic and macroscopic analyses presented in Chapter III, it is possible to argue that when the medium of instruction changes in lecture register the commonly used lexico-grammatical features and some discoursal features may change as well. Furthermore, the field of study is another variable in this study and it could also be stated that the field of study plays an important role in the analysis lecture register.

When the results of micro-analysis are taken into consideration, it is possible to argue that there are some differences in Turkish and English medium of instruction. Since the corpus is limited, none of the lexico-grammatical features are accepted as register markers; in other words, statistically they are not significant. However, at the lexical level, nouns are frequently used in lecture register both with Turkish and English

medium of instruction. Among 12.729 words in the Turkish corpus, 783 nouns are found (6.15%) and in the English corpus among 11.687 words, 665 (5.70%) are nouns. This result indicates that lecture register has an informational nature.

In the analysis, it is found that nearly 5% of Turkish corpus is made up of subordinating devices. However, in the English corpus there are 263 (2.25%) subordinating devices. Depending on the fact that subordination reflects the structural complexity, it is possible to argue that lecturers, being non-native speakers of English, avoid using complex structures. However, when the lectures are in the mother tongue, subordinating devices and complex sentences are employed. When the communicative purpose of lectures is taken into consideration, which is the transmission of information, it is natural to use subordinating devices such as relative clauses, because especially relative clauses are used to convey information about the referents in the text. Similarly "adverbial clauses express interactional propositions like reasons, purposes or temporal settings" (Biber, Conrad and Reppen, 1996:29) adverbial clauses are used in academic lectures.

Since there is an interaction between the discourse participants in lectures the use of first and second person pronouns are also frequent. 366 (2.88%) pronouns are used in the Turkish corpus and 224 (1.92%) pronouns are used in the English corpus. In fact the interaction like in conversations is not a common concern for lecture register, but still there is interaction in the classroom, therefore the use of personal pronouns is important. The use of pronouns is more frequent in the Turkish corpus due to the structure of Turkish. In Turkish, as stated earlier, pronouns can be deleted and then recovered from the inflection of the verb.

Prepositions and post positions are also used moderately in both Turkish and English corpora. Especially in the English corpus, 485 (4.15%) prepositions are found. Both prepositions and postpositions are used to expand the informational load in texts therefore it is natural to use these devices in lecture register.

Present tense markers are more frequent than past tense markers in academic lecture register. Nearly 5% Present tense markers are used to focus on the information being presented and to refer to general facts and events. The past tense is usually used for

narratives however, past tense is not frequently used. Especially the reported past tense marker –mIş in Turkish is very rare. Therefore, it can be concluded that in academic lecture register, general facts and events are presented and the focus is on the information.

Questions, in academic lecture register, are not statistically significant. In the analysis, *yes/no* questions, *Wh questions* and *what if questions* are considered. Among these three types of questions the most frequent type of questions are *yes no* questions. '*What if*' questions are very rare both in the English and the Turkish corpus. Another result is that all types of questions are more frequent in the lectures with Turkish medium of instruction. In the Turkish corpus there are 193 questions whereas in the English corpus there are only 61 questions. Especially Wh questions are much more frequent in the Turkish corpus. Since questions indicate a concern with interpersonal functions and involvement with the addressee, it can be argued that when the lectures are in a foreign language there is less involvement due to the language barrier.

Phrase and clause coordination is infrequent in the corpora; however, the clause coordinator '*and*' is moderately frequent when the medium of instruction is English (1.69%). '*And*' as a clause coordinator is a general purpose connective that can mark many different logical relations between two clauses, since English is a foreign language both for the lecturers and the students '*and*' might be overused as a generic discourse marker to substitute other topic shifters such as '*let's*.

The use of other features such as lexical classes, namely amplifiers, downtoners, discourse particles and conjuncts are nearly the same in both Turkish and English medium lectures. In the Turkish corpus, there are 234 words and in the English corpus there are 221 words under the category of lexical classes. Among lexical classes, the most frequent device used in the corpus is conjuncts which are important in discourse with a highly informational focus. However, they are usually more common in writing than speech but, as stated earlier, lectures are the examples of planned discourse and they show the characteristics of written register. Amplifiers and downtoners are not frequently used in both Turkish and English corpora; however, especially in the lectures with English medium of instruction they are very rare. Amplifiers mark certainty and

act of convincing towards the proposition, therefore to convince the addressee is not one of the communicative purposes of the lectures.

Adjectives and adverbs seem to elaborate and expand the information presented in a text. Furthermore, they are used for idea unit integration and expansion. However, they are not frequent in the lecture discourse. In the Turkish corpus, there are117 adjectives among 11.687 words. It is possible to explain this result depending on the fact that the type of information being elaborated by using adjectives and adverbs is different; adjectives and adverbs are used for elaborating descriptive kind of information rather than logical, nominal types of information. In lecture discourse, the type of information being presented is usually logical, nominal types of information, therefore adjectives and adverbs do not have a significant function in lecture discourse.

The majority of features like; imperatives, possibility modals and action verbs are rarely employed in the sample. All of these features are less than 1% in the corpora. Imperatives are 0.29% in the Turkish corpus and 0.22% in the English corpus. Similarly possibility modals are 0.46% in both corpora. Possibility modals and action verbs are between 0.55-0.75% in the sample. It is possible to argue that they do not serve for the communicative purposes of lecture register. Passives are also not frequent in the sample; because passives are important surface markers of the decontextualized style that typically characterizes writing. In a passive construction, dropping the agent results in a static abstract presentation of information. From this perspective, they are not commonly employed in lectures.

In the macroscopic analysis of the corpus, three dimensions are analyzed compartively in two different fields; social sciences and engineering. These dimensions are; planned versus unplanned or interactional versus informational discourse, argumentative versus reported presentation and overt versus logical cohesion. Therefore, some discoursal characteristics of academic lectures with Turkish and English medium of instruction can be interpreted as follows:

The most significant discoursal feature of the language of academic lectures is its being an informational discourse, furthermore, in terms of production circumstances, it might

be stated that academic lectures are planned registers. Information is carefully organized prior to its presentation. However, it must be emphasized that when the medium of instruction is Turkish in the field of engineering, the discourse is more interactional and less planned.

Both the Geological engineering lecture register and Psychology lecture register are characterized by reported style whether the medium of instruction is English or Turkish. This is another discoursal feature of academic lectures. Discourse depends on the simple presentation of facts with little consideration of alternative possibilities. The purpose in university lecture register is to give information by simply reporting the facts. Nouns can be considered the register marker of lectures; therefore, the discourse depends on reported presentation of information rather than argumentative presentation of information.

Another discoursal feature of university lectures is that they are marked with implicit logical cohesion. This does not mean that the conjuncts and other devices are not used in the lectures; however, in lectures there are other meta discursive monologic expressions used to structure on going speech like "today we're gonna discuss ions and cations in the next hour". Especially, when the lectures are in L1, overt logical cohesion is less frequent compared to the lectures in a foreign language. Using overt or implicit cohesion devices depends on the subject matter as well as the medium of instruction. In other words, it is supposed that since lecture comprehension is usually a major obstacle for non-native speakers, the presence of overt logical connectors and similar devices are beneficial in guiding students. Furthermore, using overt logical cohesion both in L1 and L2 lecture register is also necessary for many disciplines, particularly, science and engineering. In this study, in the Geological engineering department, when the medium of instruction is English, there is extensive overt logical cohesion and when the medium of instruction is Turkish there is implicit logical cohesion.

Although it has some limitations, this study also suggests a number of possibilities for further research. Further research with a wide disciplinary focus would likely reveal interesting differences in how academic lecture discourse is structured in various

academic disciplines. Moreover, for register comparison studies, this particular study might be considered as a starting point.

From a pedagogical viewpoint this study might also be considered important. The findings of the study might help both the L2 lecturers and lecture audience to enhance the awareness of the important function of certain lexico-grammatical features in constituting the discoursal features and ultimately contribute to more successful lecturing.

This study might also be considered important from an educational discourse viewpoint; for the reason that 'medium of instruction' is a classroom discourse problem and necessitates in depth discourse analysis. On the other hand, the criticisms directed at foreign language medium instruction, are largely based on the evaluations and observations of the instructors and students. However, this is a scientific discourse study and depending on the results of the study the issue of medium of instruction might be reconsidered.

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APPENDIX

SAMPLE LECTURE ANALYSIS

METU Geological Engineering (March, 11 2004)

Dimension 1: Structural Elaboration: Interactional (Unplanned)vs Informational (Planned)

- **Interactional Features (Positive features)**

Yes/No questions: 9 e.g. *Is this an equivalancy? Isn't it? Ok?*

Or Coordination: 4 e.g. ...she will be the third person in this team *or* you know she can make a team with another people in section two...

Stance ajectives: 4 e.g. *famous, cold* etc.

What if questions: 1 e.g.*What if the Cp values are not provide directly...?*

Time deictic: **8** e.g.*last week,in the secon hour, today etc.*

Focus Markers: 3 e.g. *We also konow, entrophy can also be used*

Amplifiers: 8 e.g.*extremely, fully, greatly, highly, intensely, perfectly...*

Downtoners: 2 somewhat, fairly

Imperatives: 10 e.g. *calculate the stanart enthalpy, try to arrange your groups.*

Wh Questions: 13 e.g. *which way the reaction goes at twenty five degree Celcius?What comes out when we take this out?*

1st an 2nd person pronouns: 42

Causative adverbial clauses: 7 e.g. *this is because exhotermic process, elevated temperature because the reaction of formation of most of te substances...*

- **Informational Features (Negative features)**

Relative Clauses: 7 e.g. *Specific heat which is defined, in cases where etc.*

And clause/phrase coordination: 23 ... *one glam by one degree Celsius and the heat*

capacity is a measure

Common Nouns: 66 e.g. *student, grpoups, homework assignments etc.*

Complement Clauses: 14 e.g. *I think that...t, it is natural to say that...,It means that...*

Agentless Passives: 16 eg. *teams are supposed to consist of 3 stuents, quartz is heated, when salt is stirredetc.*

Dimension 2:Argumentative vs Reported Presentations

- **Argumentative Presentation (Positive features)**

Present tense: 72 e.g. *says, requires, comes out, take place, seems, appears, describe, becomes, adds, increases etc.*

Predicative Ajectives:2 *I'm not sure, That's right.*

Possibility Modals: 9 e.g. *enthalpy changes can be used fairly satisfactoriliy ...*

Concession Conjuncts: 2 *although it is entirely natural..., despite the fact that...*

- **Reported Presentation (Negative Features)**

Past Tense: 9 e.g. *distributed, were able to, had, provide, involved, consiered*

Nouns: 66

Dimension 3: Overt vs Implicit Logical Cohesion

- **Overt Logical Cohesion (Positive Features)**

Conjuncts: 23*for alcoholic reactions that is to say the reactions, elevate temperature beacuse the reaction...as a conclusion, furthermore, in fact...*

Multi-functional Adverbial subordination: *values provied inirectly while giving the coefficients*

Discourse Particles: 10 e.g. *now, all right, ok,well, you know etc.*

Action Verbs: *give,d istribute,prepare, put, make a note, write down,*

Prepositions:87 e.g. *in, of, at, with, down, to, of etc.*

Conditional clause coordinators: 1 *processes do not occur unless energy is supplied*

- **Implicit Logical Cohesion (Negative Features)**

Nouns:66 (18 specific) e.g. *enthalpy, equation, Gibbs free energy etc.*

Possesive Markers: -

Passive constructions:16 e.g.*CP is expressed in terms of..., the temperature of interest are known..., when this salt is stirred...*

H.U. Department of Psychology (November,11 2004)

Boyut 1: Yapısal Ayrıntılandırma: Etkileşisel (Plansız) vs Bilgisel (Planlı)

- **Etkileşimsel Özellikler**

Evet/ Hayır soruları : 3 *e.g. açar mısınız, değişmeyecek mi, sorunuz var mı?*

Ya da/ veya bağlacı: 2 es*as olarak ben ya da benlik, benlik ya belirlenmiştir ya da..*

Tutum sıfatları:8 *Çok büyük bir adam, sert bir kişi*

O halde soruları: -

Zaman belirteçleri: *12 daha önceden, dersin başında, 1939'da, kısa süre sonra etc.*

Odaklayıcılar: 11 *başka eserleri de var, sonrasında da aynıdır.*

Anlam güçlenirici belirteçler: 19 en iyi, en çok, en iyi tamamen

Anlam zayıflatıcı belirteçler: -

Emir Tümceleri: -

'Ne' Soruları:

1. ve 2. kişi adılları: 8 e.g. *bahsettiğimiz, çalıştık, devam edeceğim.*

Neden gösteren belirteç yan tümceleri: 4 e.g. olduğu için, çünkü.

- **Bilgisel Özellikler**

Ortaçlar: 45 e.g. *getirdiği, anlatıldığı, yaşayan organizma, yaşamış insan, netleştiremeiğimiz kavramlar*

'Ve' öbek/ tümcecik bağlacı: 20

Adlar: 58

Tümleç yan tümceleri: 13 *biyografi veriyoruz ki bağlantı kurabilelim.*

Edensiz edilgen: 8 getirildi, *özetlenebilir, kaplanmıştır, tanımlanıyor, çalışılıyor,* etc.

Boyut 2: Dolaysız vs Dolaylı Söylem

- **Dolaysız**

Geniş Zaman: 51 *içerisindedir, yansıtmaktadır, içermektedir, ortaya çıkarmıştır etc.*

Sıfat Tümceleri: -

Olasılık kipleri: 4 *özetlenebilir, kullanılabileceğini*

Ödünleyici belirteç yan tümceleri : 1 *bilinmediği halde*

- **Dolaylı**

Geçmiş zaman: 17 *sığınmışlardı, çalıştık, ediyormuş, algılıyormuş, çalışıyormuş*

Adlar: 105 e.g.*olaylar, yaşantı, insanlar,kavramlar, benlik, canlılar, temel yapılaretc.*

Dimension 3: Overt vs Implicit Logical Cohesion

- **Overt Logical Cohesion (Positive Features)**

Mantıksal bağdaşıklık belirleyiciler: 4 e.g.*dolayısıyla, kısaca, örneğin etc.*

Çok işlevli belirteç yan tümceleri: 25 *güvenceye alacak kadar çok para..., arzularını*
       doyurduğuna inanıyor.

Söylem Belirleyiciler: 5 e.g. *yani, gerçekten de, evet etc.*

Hareket gösteren eylemler: 15 *imzalatmak, yayınlamak, al, açıkla etc.*

Son ilgeçler:65 e.g. *gibi,için, ile, yoluyla, göre, kadar gibi, itibaren*

Koşul Tümceleri: 1

- **Implicit Logical Cohesion (Negative Features)**

Adlar: 105 (58+47) e.g. *totem, tabu, psikopatoloji, psikaanaliz, Freud, güdü, libido,*
       insan, alt benlik

İyelik ekleri: 30 *dersinin sisteminde, babası, Freud'un kuramı,Freud'un determenistik*
       bakış açısı

Edilgen Tümceler:10

METU Geological Engineering (March, 11 2004)

I'm going to give you a homework assignment OK? As you remember, last week I distributed the forms and homework assignment will consist of a set of six problems, problem sets and each set will be containing three or four or five questions all right? So as far as I know you are now 22 students and teams are supposed to consist of three students, so probably one student will work alone and whatlıe or she can do is either join one of the teams in this section so he will be or she will be the fourth person in this team or you know she can make a team with anather people in section two., because I think in section two there will be alsa one student who work alone. So what I would like you to do is prepare a list in the break for the second hour, I would appreciate all right? And I will be distributing you the first homework assignment taday because the home works will be due to eighteenth of march, next Thursday, so please try to arrange your groups and so that you can let me know in the second hour and I will distribute the homework accordingly and remember again the grading of the assignment of each team will be reflected in the grading of the students making up the team and it is your responsibility to make the work arrangement of each student in the team or during the solution of the problem set. OK?

All right, well, today we will continue with the concept of heat capacity, remember that the heat capacity is the amount of heat required to increase the temperature of one mall above one degree Celsius. Somewhat identical with heat capacity is the specific heat which is defined as the heqt required ... to increase one glam by one degree Celsius and the heat capacity is a measure of aa is a me an to provide the calculation of reaction enthalpy that the elevated temperature because the reaction of formation of most of the substances of geologic impress are elevated for twenty five degree Celsius. Remember CP was being defined as dq over dt and for alcoholic reactions that is to say the reactions taking place at constant pressure temperatures we were able to define this as dh over dt which which is for alcoholic cases substance p denoting the constant pressure conditions. We alsa have anather expressian for Cp and that is3 point twenty eight yes, CP are alsa being expressed by equation a plus bt minus Ct to the power minus two a,b,c being constant relevance to the substances involved in the reactions and that was

our equation three point thirty . .And we had an example on Tuesday just to show how we use CP's to calculate the reaction enthalpies at elevated temperature and remember again that in 'these examples we provided the çp values for the substances involved in the reactiops. if the CP values are not provjded directly but rather in this way giying the constant a,b and c for the substances. Now let us see how we calculate the reaction enthalpies using Cp as higher or anather different temperatures. So, let us say that in cases, where heat capacity data are provided indirectly, that is to say, providing the coefficients a, b, c rather than providing direct CP values for the substances, the determination of enthalpy change or requires the use of equations three point th,irty-two and three point thirty-three and that' s the /' one example. The problem says how does the enthalpy of one mal quartz change if it is heated from twenty-five degree Celsius to three hundred degree Celsius? Note that the heat capacity can be expressed as CP equals a plus bt minus cT power minus two J joule per mole per Kelvin where the coefficience a equals to forty-six point ninety-four b is equal to point O three four three and c is equal to one, one two point nine six. So this is the equation provided and those are the coefficients so you are going to find out the change in enthalpy while the quartz is heated from twenty-five to three hundred degree Celsius. Well the solution is, first of all please note that since CP is expressed in terms of,. in units of Joule per mal per degree Kelvin, we have to convert the temperature value s from degree Celsius to Kelvin, So then we have two temperatures twenty five degree Celsius which is equal to twenty five plus two hundred and seventy three that is two hundred and ninety-eight degree Kelvin and three hundred degree Celsius is equal to five hundred and seventy-three Kelvin. Delta H is equal to a plus bT minus cT power minus two times dT when going from the temperature of reference to the temperature of interest. That was one of our earlier equations. Okey, I think that was given in_equation number three point thirty two. So what comes out when we take these out of the integrated sign we have a time{t-minus T ref plus ovfer two times T square minus T ref square plus C times one over T minus one over T ref. So here the temperature of reference and the temperature of interest are known. So let' s find putting the values, the temperatures as well as the coefficients a, b and c what you have is Del H is equal to forty-six point ninety four times five hundred seventy three minus two hundred ninety eight plus point O three four three, that was coefficient b, over two times zero five hundred seventy three power two

minus two hundred ninety eight power two that was the second champ in the equation, plus for coefficient b, we have one, one two nine six eight O times one over five seven three minus one over two nine eight. Ok so these are the three terms; one two and three for you do the combination we obtained one two nine O eight point five plus point O one seven one five times three two eight three two nine minus eight eight eight O four plus one one two nine six eight O times point O O one. seven four five two minus point 00 three three five five seven. Ok I think you can make a check of these at home; what I obtained from these calculations is that Delta H is equal to one five one nine six point Joule per mol nine or Del h is equal to Five point one nine seven kilo joule per moule. This is the example in cases where the Cp values provided indirectly while giving the coefficients a, b and c rather than giving Cp's. Yes, Okey so I'm not sure whether you have an example of the calculations using Cp in your homework ·"experiment. I think you have one question of the problem set. Okay, now let' s have a look at a concept which is the relationship between the heat of reaction or enthalpy and the probability of the occurrence of a reaction. We express this as enthalpy change as a measure of reactivity. Well, I would like to write down some important expressions here and later on we can discuss this. Well first of all at a first glance it looks as if enthalpy changes might be a key to answer questions like "will a reaction take place?" Now, thi-s is because exothermic processes often take place spontaneously. Enthalpy changes might be an indication of reactivity and this is because exothermic processes often take place spontaneously while endothermic processes do not occur unless energy is supplied. Furthermore, the more exothermic a reaction is, that is to say, the higher its negative Del H, the more energetically we expect it to proceed. In fact we will s.ee from the examples that we will consider in the coming hour, when we look at a reaction and calculate its enthalpy change if it becomes an exothermic reaction if Delta H value ends up with a negative value we say that OK the reaction proceed from this product to this reactor; but this is a sort of generalization, it means not to be so always Ok?

So, I should say here that although it is entirely natural to say that the energy available in a reaction d etermine s how readily and how violently the reaction will take place, this generalization cannot be strictly true for chemical reactions. Some reactions take place spontaneously despite the fact that they are endothermic. The best example is the dissociation of potassium nitrate when this salt tirred in water; the container quickly

becomes cold because the reaction is potassium nitrate an endothermic reaction. And the delta H value is a positive value, which is thirty-five kilo joule per' mol. So although it seems at the first sight that the enthalpy reaction can be an indication of whether the reaction will happen or not it is not by itself a true indicator, we should always need so me other criteria and that we will introduce later as the pre energy or the x pre energy but let' s just make a not e here in our famous blue boxes that the enthalpy change is by no means an infallible measure of the tendency of a reaction to take place but the size of enthalpy change provides a gross indication of reactivity. In the absence of other data, enthalpy changes can pe used fairly satisfactorily to make predictions about the directian of reactions and the behaviour of substances. Let's consider one example.

For the reaction, Fe two 03 in solid form; you know which mineral is this? That's right carbonic acid; plus two males of carbonic acid in aqueous form H two CO three is carbonic acid; and two males of iran calgonte and how about this? Any idea about the mineral name? I think we considered this the last hour didn't we? Iron calgonate? No, led calgonate we considered. This is siderite. Plus half a mole of oxygen in gases form plus two males of H two O in liquid form. So we are given this reaction

SI: Hocam,

Yes ...

SI: Is this an equivalency? Or like an equation equivalency I mean? This? Isn't it?

No it doesn't matter I mean in ord er to find out you know, if I put an arrow this directian it means that directly the reaction will go to the this side, I just put this equation sign because at the moment we are not sure which way the reaction will go okay? So don't worry ifI'm using here a sign like this or an arrow but for the moment because we don't know in which directian the reaction will go this time. So don't worry about this.

Now, the first question is to calculate the standard enthalpy change at twenty five degree Celsius.

The second one is which way the reaction goes at twenty-five degree Celsius? Which is more stable at twenty-five degree Celsius, hematite or siderite?

If you natice, in this example by using the enthalpy change we will find out which way the reaction goes.

What we do here for a, we are going to determine the Delta Hr

The Del Hr is equal to two males of delta H for siderite plus half Del H O two plus two times of Del H,for H two O those are the Del H values for product, minus Del H for hematite plus two times Del H for H two C O three, which is carbonic acid. I think we didn't go through this did we? Each element has a zero enthalpy in its elemental form. Okay we considered this. So this is zero because oxygen is in gaseous form and gaseous form is the elemental form of oxygen so, at twenty-five degree Celsius it has zero enthalpy and we carry out this calculation and end up with plus thirty six point seventy six kilo calorie ; so this is the standard enthalpy change at twenty-five degree Celsius for this reaction.

So can you arrwer part B, which way the reaction go es at twenty-five degree Celsius?

S2: To the left

To the left Okay. As I said I mean this is or this may not be strictly true, because we need to see the other data like Gibbs free energy, free energy change that we will consider later on but for the time being this value gives out an indication of the reactivity and we say that since this is an endotherrnic reaction we have to supply energy to the system to make it work, unless we supply it will go to the left hand side. So for this case, the reaction will go to the left side.

If this is so, which one of these substances is more stable at twenty-five degree Celsius hematite or siderite?

S3: Hematite.

Hematite is more stable because, the reaction will go this way, so hematite is more stable. So as a conclusian for this we use enthalpy change as a measure of reactivity the necessary requirement is achieved through the use of anather property, related to enthalpy again known as Gibbs free energy. So the new section now is Gibbs free energy.

We will start first of all with the definition of Gibbs free energy. From the preceding sections it appears that the tendency of a reaction depends on two factofs; one is the change in enthalpy that we have just considered and the second one is, the change in the degree of disoroer. So the tendency to react can be expressed as Del h enthalpy change plus change in disorder. In this respect, we have a combination of both and we also know from the previous sections the change in disorder is measured by what?

S2:Enthrophy.

That' s right so we also know that entrophy can also be used used as a measure-of the degree of disorder as an energy term than we can express the change in disorder as; T Del S. And in this respect, we can describe 'tendency to react as a. new variable called change in, free energy' which is symbolized as del G.

Del G is equal to del H minus T del S.This is the definition of free energy. I think you have noticed the minus sign here, because we said that the tendency to react is a summation of Del H and the change in disorder, right? We have a minus sign here, what do you think this is so? This is because, you know, the enthalpy change in enthrophy at in a sort of reverse order, reverse in the sense that-when··uhm, when Delta H becomes more and-more 'negative, we have a tendency for the reaction. The reaction will occur I mean. Okay? When this becomes negative butthe entrophy is increasing force the dirction of the reaction. I mean the reaction will tend to occur as Del h becomes negative, and del s İncreases, so they are behaving in an opposite sense to each other so I should not e that the minus sign means that an enthrophy increase adds to the negative value of Del h, in other words, this enthropy increase, increases the tendency of a reaction to take place. So then, the reactivity is expressed as a summation of the enthalpy change and the change in disorder but two parameters act in epposite sense that is to say, an enthropy increase adds to the value of Del H in other words enthropy increase , increases the tendency of a reaction to take place.

H.U. Department of Psychology (November,11 2004)

Daha önceden bahsettiğimiz gibi bugün klasik psikanalist olan Sigmund Freud ile başlıyoruz Bu kişilik kuramları dersinin sisteminde her dersin başında önce biyografi veriyoruz ki kuram ile kuramcının yaşam öyküsü arasında benzerlik kurabilelim. Sigmund Freud psikanalist kuramının kurucusu olduğu için çok büyük bir adam, bu alanda büyük bir devrim yarattı yani getirdiği kuram o nedenle, çok incelendi hayatı da incelendi, arkadaşları ile ilişkileri aile yaşamı hep incelendi ve birçok makaleye, kitaba konu oldu. Biyografisi de sonradan Ernest Jones isimli bır psikanalist tarafından ayrıntılı bir şekilde kaleme alındı. Ernest Jones'un biyografisinden kısaltaraktan burada Sigmund Freud'u tanıtacağız önce Freud 1856'da Moravia'da doğdu. Şimdi Çek Cumhuriyeti toprakları içerisinde kalan bir Alman bölgesi. Zamanında Avusturva

kapsamında. Bu sekiz kardeşin en büyüğü bir kişi, annesi babasının ikinci eşi ve Freud'u 21 yaşındayken doğuruyor. Freud doğduğunda babası 41 yaşındaymış yün tüccarı bir baba. Yahudi anne ve baba. Viyana'ya taşınıyorlar Freud 4 yaşındayken ... 17 yaşına geldiğinde tıp fakültesine gitmeye başlıyor ve nöroloji derslerinde özellikle ön plana çıkıyor, çok başarılı oluyor. Fotographic belleğinin çok güçlü olması ile ünlüymüş bir gördüğünü bir daha unutmuyor. En çok profesörü Bruke'den etkileniyor, fizyoloji hocası olan bir profesör bu. Çok disiplinli bir adammış bir bakışı ile öğrencileri etkileyecek kadar sert bir kişiliği varmış. Buruke'nin organizmalar ile ilgili bir görüşü var. Yaşayan bir organizmadaki tek kuvvet kapalı bir enerji sistemi içinde etkileşen fiziksel kimyasal kuvvetlerdir diye inanıyor. Bu görüş sonradan Freud'un kuramında oldukça etkili olacak göreceksiniz, insanın kapalı ve içerisinde enerji dolaşan bir kişilik sistemine sahip olduğunu öngörecek. Freud herşeyden önce araştırmacı bir bilim adamı. Birçok buluşu var ve bunların patentlerini alıyor bu sayede de kendini güvenceye alacak kadar çok para kazanıyor, yaptığı keşifler arasında araştırmalar arasında erkek yılan balığının testisi bulunduğunu ortaya çıkarmıştır. Balıkların sinir hücrelerinin yeni bir takım kütleler taşıdığını keşfetmiş, sinir dokusunu inceleme amacı ile ilk kez, altın klirid pigmenti ile boyamayı geliştirmiş, hücreler arası temas noktası demek olan ki şu anda synaps olarak biliniyor o zamanlar bilinmediği halde bu terimi hatırlatan kavramlar kullanmış. Kokainin anestetik madde olarak kullanılabileceğini göstermesi de ününü oldukça ilerletmiş bu keşfi kokaini bizzat kendi üzerinde deneyerek bulmasına bağlı bu da projenin en önemli derslerinden birini kanıtlıyor bilmediği olaylar karşısında, onu açıklayıncaya dek hiçbir şeyden kaçınmıyor herşeyi deniyor. Sonradan başına da bela açılabiliyor, mesela kokainman olmakla suçlanmış daha sonradan halbuki sadece deney amacıyla kullanmış. Yaşamı boyunca da kendi kendini analiz etmeyi bırakmamış bir insan, her gün yarım saatini bu işe ayırıyormuş, kendisini eşsiz bir vaka olarak test etmeye çalışıyormuş. Birisinin davranışını anlayamadığı zaman bunu esrarengiz kabul ediyormuş, algılıyormuş ve çaba gösteriyormuş anlayabilmek için en önemli eseri 'Rüyaların Yorumu' kendi rüyalarının analizine dayanır. Freud rüyaların insanların günlük yaşamda doyuramadığı arzularını doyurduğuna inanıyor1920'lerde yayınlamış olduğu Rüyaların Yorumundan sonra, bir sene sonra, Günlük Yaşamın Psikopatolojisi isimli kitabını yayınlamıştır bu da kendi günlük yaşamının analizine dayanmaktadır. Bellekte, konuşmada okumada ve yazmada meydana gelen görünür bazı

hataların, sürçmelerin anlamı ile ilgili görüşlerini içermektedir bu kitabı. Bu iki kitap Freud'un determenistik bakış açısını çok iyi yansıtmaktadır. İnsan davranışları ile ilgili kazayla ya da şansa bağlı olarak meydana gelmiş hiçbirşey yoktur Freud'a göre. Freud'a göre kişilik ile ilgili herşey belirlenmiştir ya da psikolojik bir nedene bağlıdır bu nedenleri ortaya çıkarmak ve anlamak sadece yapmamız gereken şeydir. Biyoloji okuyup, :fizyoloji deneyleri yapmasının hatırlattığının aksine Freud, biyolojik değil, psikolojik bir determinizmden bahsediyor. İnsanların birşeyi neden /yaptığını açıklarken bu psikolojik determenizm ilkesinden hareket ediyor Freud.bilinçlilik, bilinçsizlik ve bu gibi şeylerin sinir hücrelerinden falan haberi yoktur demiş yani biyolojik bir nedene dayandırmıyor. Bazılarından farklı olarak Freud, kendi kişisel yaşantıları ile ilgili, gizli yönleriyle çok daha yakından temas halinde olabiliyor, kendi gerçekleriyle yüz yüze gelebiliyordu, hiçbir şeyden korkmadan cesaretle yüzleşiyordu. Dolayısıyla kendini temel bir denek, en birinci deneği yapmıştı ve bunu kullanıp davranışlarının gizli kökenlerini araştırmak için önünde engel kalmamıştı yani ne anlamda söylüyorum bunu çünkü daha o zaman adı konmamış bir olaydır bilinçdışı meselesi öyle kolay koyduğunuz yerden alamıyorsunuz o nedenle başka insanlarda yapmak, doğrudan doğruya ilk seferde,tehlikeleri de icat edilmemiş daha neticede mümkün değil, o hissettiği böyle bilinçdışı birşeyler var bastırılmış olaylar var şeklinde hissettiklerine en kolay nerede ulaşacak, subjektif olmakla beraber kendinde ulaşacak. Birinci denek olarak o nedenle kendini kullanıyor daha icat edilmemiş, bilinç dışı teknikleri, onun için ilk hareket noktası kendisi. olmuş oluyor. Annesi ile ilişkisinin yakınlığını, babasına yönelik düşmanca tutumunu fark etmesi ile birlikte yaşadığı yoğun korkularıyla baş edebiliyor. Bu anlamda kuramsal öncü bir kişi oluyor. Gerçekten de Freud'un kendi ile ilgili bu keşfi kişilik kavramının temel direklerinden birini oluşturmuştur. Hatırlayabildiği en ünlü pardon en eski anısı çocukluğunda ana babasının yatak odasına cinsel bir merakla sızması ve kızgın babası tarafından azarlanması ile ilgili olanıdır. Kendi kuramı ile tutarlı bir şekilde Freud 40 yaşındayken babası öldüğünde bu ilk yaşantılarına bağlı duyguları kendisinde bir suçluluk duygusu yaratıyor ve bunu bir arkadaşına yazdığı mektupta dile getiriyor.

Freud yaşamının büyük bir bölümünü Viyana' da geçiriyor. Sinir hastalarının tedavisi için evinin yakınında bir muayenehanesi var. Evinin bitişiğinde olan bu ofis şimdi de onun adına düzenlenmiş/dünyaca ünlü bir müze. Tedavi ettiği sinir hastaları bizim

bildiğimiz nevrozlular, nevrotik kişiler ayrıca histerik kişiler ile uğraşıyor. Onlar üzerinde çalışan gene doktor Şato Fransa' da onun yanına gidiyor bir yıl orada eğitim görüyor. Hipnoz kullanıyor dr Şato. Freud hipnozun etkisini gözlemekle birlikte çok fazla katılmıyor ve döndüğünde hipnoz tekniğini kullanmak yerine hasta ile konuşma yoluyla tedavi tekniğini kullanıyor. Viyana' da bir psikanilitik topluluk oluşturuyor, arkadaşları ile birlikte.

Altı çocuğu oluyor ve babalık rolünden çok memnun çocuklarında biri Anna ünlü bir çocuk psikanalisti oluyor. 1909' da Amerika' da konferanslar vererek dünyaya açılıyor. Yaşamı boyunca kuramını geliştiriyor pek çok düzeltmeler revizyonlar yapıyor, yanlışlarını kendisi buluyor. Bu yanlıştır diye ilan edip, böyle olmalıdır diye yenisini koyuyor. 1938deki Nazi işgalinden sonra kısa bir süre sonra Yahudilere yönelik baskılar artıyor ve arkadaşları tarafından Viyana' dan ayrılmaya ikna ediliyor. Aslında Freud ana babadan Yahudi olmakla birlikte kendisi ateist (tanrı tanımaz) hiçbir dine inanmıyor, dinin algısal bir yanılsama olduğunu ve tüm uygarlıklarda insanların bebeklik döneminin çaresizliği duygusu ile başa çıkmak için bu inancı geliştirip, kullandıklarını düşünüyor, böyle bir görüşe sahip ama andan babadan Yahudi olduğu için Yahudiler Freud'u rahat bırakmıyorlar, kız kardeşlerini toplama kamplarına toplamışlar bazılarını öldürmüşler, Freud'un kitaplarını yakıyorlar Viyanadan ayrılmasına uluslararası şahsiyet haline geldiği için engel olamıyorlar ama ayrılırken elinden yazılı bir beyanname alıyorlar, işte hiçbir zaman görüşlerimi ilan etmeyeceğim şeklinde, çünkü bütün toplumu rahatsız etmiştir görüşleri insana ilişkin görüşleri, cinselliği ortaya koyması bu nedenle kendisine böyle bir sözleşme imzalatılıyor. Viyana' dan Londra'ya göç ediyor bundan bir yıl sonra 23 Eylül 1939' da ağzını ve çenesini saran bir kanser türünden dolayı vefat ediyor. Tüm yaşamı boyunca puro içen bir kişidir tam 83 yaşındayken de böyle bir hastalıktan ölüyor.

İnsana ilişkin temelde olumsuz bir bakış açısı getirmiştir. Bunu mesleğine bağlayanlar var, ömrü boyunca gördüğü nevrotik hastalar onu etkilemiştir diyenler var.

Ö: Hocam olumsuzu açar mısınız?

İnsanı yıkıcı olarak görür, hayvani iç güdülerinin etkisi altında görür. Freud, iyimser kötümser boyutu görmüştük ya oradaki kötümser boyutun uç tarafında. Histeri üzerine çalışmalar, Totem ve tabu ki bu insanın dini inancının nasıl ortaya çıktığının çok iyi anlattığı bir kitap. Dinsel inanç nasıl ortaya çıkıyor bu konudaki görüşlerini anlatıyor,

Rüyaların yorumu, günlük yaşamın psikopatolojisi gibi eserleri bilinen en ünlü eserleri yüzlerce makalesi ve başka eserleri de var. Freud'un ölümünden sonra psikanaliz kuramı iyice kabul gördükten sonra tüm eserleri toplu halde bir ansiklopedi haline getirildi.Kısaca yaşam öyküsü bu şekilde özetlenebilir. İnsan anlayışına ve kuramına da girmiş olduk böylece ama daha net söyleyeceklerimiz var insan anlayışına ilişkin. Freud bilinçdışı, içgüdüsel akıllı mantıklı olmayan bir gücün yönettiği çok canlı bir insan portresi çiziyor. Ona göre insan organizması, kendi içinde ve dışarıya karşı saldırgan ve cinsel bir yapıya sahip, hatta en masum olduğu çocukluk döneminde bile. Freud'a göre birey, bilinçli kontrolünün dışında yer alan olayların etkisi altında çok zayıf bir uygarlık kabuğu ile kaplanmıştır. Ve değişmez bir engellenme süreci içerisindedir. İnsanlar yalnızca korkularından ve algı yanılsamalarından dolayı dinsel inançlara sığınmışlardır. Arkadaşlar Freud'un insan anlayışının temel noktaları anlaşılabilirliği arttırmak ve biraz da abartmak suretiyle 10 madde de özetlenebilir:

İnsanın kişiliği 5 yaşında neyse sonrasında da aynıdır

İnsan kendini gerçek kişiliği ve nasıl geliştiği konusunda çok az bir bilgiye sahiptir. Yani kişiliğinin asıl ağırlıklı yönünün farkında değildir.

Özgür irade diye birşey yoktur. Herşey bireyin kendi kontrolünün dışında belirlenir. Seçim özgürlüğümüz yoktur.

İnsanın temel güdüleyicileri cinsellik ve saldırganlık dürtüleridir. Tüm davranışlarının altında bu teme güdüler vardır.

İnsan davranışlarının çoğunluğu mantıkdışı yani irrasyonel bir yapıya sahiptir.

İnsanın yaşamı boyunca birçok çatışmalrı olur.

İnsan kendi gerçek benliğini tanımaktan korkar ve bu yüzden kişiliğinin hoş olmayan yönlerini kendinden saklar

İnsanlar çocukluklarının belli bir döneminde karşı cinsten ebeveynlerine cinsel ilgi duyarlar.

Kadınlar ve erkekler farklı psikoljik olaylar yaşamalarına bağlı olarak, kişilik açısından birbirleriyle eşit değildirler.

.İnsanın var olan kişiliğinin değişebilmesinin en iyi ve tek yolu eğitilmiş bir psikanalistle   terapiye girerek, ilk çocukluk yaşantılarına ilişkin içgörü kazanmaktan geçer.

Evet Sigmund Freud'un insan anlayışına ilişkin temel noktaları bu maddelerde çarpıcı

bir biçimde derlemeye çalıştık. Buna göre gördüğünüz gibi çok erken yaşlarda insan kişiliği oluşuyor, tamamen determenistik bir anlayış. İnsan davranış nedenleri, motivasyonu bilinçdışı, cinsel ve saldırgan bir doğası var sürekli olarak içinde çatışmalar yaşıyor ve savunma mekanizmalarını çalıştırıyor. Çocukluk döneminden itibaren bir cinsellik söz konusu ve kadınlar ve erkekler temel bir farklılığa sahipler çünkü geçtikleri yollarda bir farklılık var kişilik gelişimi açısından mekanizmalar farklı o nedenle sonuç ürün olarak farklı. Peki bütün bu belirleyicilik içerisinde kişilik değişmeyecek mi? değişecek ancak derinliklere ulaşarak değişecek. Psikanaliz ile derinliklere ulaşarak kişiliği değiştirmek anormallikleri ortadan kaldırmak mümkün. Temelde böyle bir bakış açısı var klasik psikanalist Freud'un insana Buraya kadar sorunuz var mı?

Kişilik modelinde kişiliği yapılara ayıran kuramcı, kişilik yapılarından söz etmiştir,yapı kavramı birşeylerin bir araya nasıl konduğunu anlatıyor, örneğin aile yapısı gibi aileyi oluşturan yapılar var anne, baba çocuk gibi .. Kişiliğin de böyle temel yapıları var. Kişiliğin biyolojik yönü olarak düşünülen ve doğuştan var olan alt benlik yani id üçüncü tekil şahıs o gibi bir anlamı var. Vahşi ve benim dışımda anlamına geliyor. Zaten var olan yönü, hayvani yönü. Bunu dengeleyecek bir yapı sonradan gelişecek. 'Ben' ego daha sonradan toplumsal kuralların içselleşmesi ile 'süper ego' toplumun kişiliğe yansımasını anlatıyor. Bunlar kişilik yapısının bileşenleri, ruhsal yapımızı bunlar organize ediyor ve dinamik olarak kendi içlerinde etkileşim içindeler. Id en temel sistem, bilinçliliğin, farkındalığın ötesinde doğduğumuzda var olan herşey id'in yansımasıdır. Açlık, susuzluk, cinsellik, tehlikelerden korunma ilkel psikolojik gereksinimlerin tümü burada yer alıyor. Herşey tamamen id ile bağlantılı oluyor. Bilinçdışını oluşturan yönü bu. Bebekte bu biyolojik yönü henüz saklayamadığı için sürekli olarak organizmada meydana gelen, açlık \okluk geriliminin oluşmasında işaret verip, gerilimin giderilmesini sağlıyor ve döngü içerisine giriyor. Alt benlik haz ilkesi ile çalışıyor. Bu süreç, doğrudan doyum isteyen ilkel arzu ve imgeleri içeren olayların daimi bir akışı olarak tanımlanıyor. Gerilimi gidermenin gecikmesi söz konusu olduğunda acıyı azaltmak için hayal kurarak gereksinim giderilmeye çalışılıyor bu birincil süreç düşünmedir. Wish fullfillment olarak adlandırılıyor. Kısaca alt benlik ilkel bir sistemle çalışıyor. Nedir doğru yanlış bu tür kavramlar henüz yok. Alt benlik iç güdülerimizin instinct ve drive diye geçiyor bir deposu.

Freud'un kuramında netleştiremediğimiz bazı kavramlar var örneğin libido diye bir kavram var, bazı yazılarında id'in enerjisini libidodan aldığını söylüyor. En geniş anlamı ile cinsel isteğin libido olduğunu söylemiş#aha sonra yaşam ve ölüme yönelik içgüdüler diye bir ayırım yapmış, bunları adlandırırken içeriklerini dikkate alarak efsanevi kavramlardan yararlanıyor ve Ems ile Tenados diye ayırıyor. Türümüzü korumaya yönelik güdüyü Ems temsil ediyor, kendini ve başkalarını sevme buradan türüyor. Yıkıcı ve ölüme yönelik güdüleri de Tenados temsil ediyor. Tenados yaşayan şeyleri kökeni olan yaşamayan şeylere döndürme mekanizmasıdır. Çünkü yaşayan organizmalar yaşamayandan ortaya konmuştur ve sonuç itibari ile maddeye dönmek esastır. Tüm yaşayan canlılar stabilize olmak düzleme varmak istiyorlar, düzlemin son hali de ölüm hali yani madde halidir. insanda ölüm, öldürme, yok etme içgüdüsü vardır. Bireyde hem yaşam hem ölüm mekanizmalarının bulunması bireysel farklılıkların temelinde yatmaktadır. Yıllarca toplumla uyum içerisinde yaşamış bir insanın başına birşey geliyor, bardak taşıyor ve yıkıcı bir eylemde bulunabiliyor.

Birkaç günlük bebeğin hareketlerine baktığımızda, etrafındaki insanlarla bilinçli ve amaçlı bir alışverişi yok. Uyuyor, doyrulmak istediğinde işaret veriyor çünkü temel uğraşısı fiziksel ihtiyaçlarının doyrulması, sosyal bir yönü yok işte bu id'in kendisi, bu davranışlarının kökeni tamamen biyolojik. Aylar sonra kişiliğin bu id denen yapısı yetmiyor artık dışarı kavramı oluşuyor, dış gerçeklik ile ilişki kurabilecek bir yapıya ihtiyaç oluyor. Bu sistem de kişiliğin ikinci yapısı olan ego. Bu da benliğin psikolojik yönünü oluşturuyor ve tamamen id' den gelişerek onun enerjisini kullanıyor.Bir çeşit farkındalığa ulaşma özelliği oluyor. Asıl amacı id'in gereksinimlerini doyurmak ve gerekirse gerçeklik ile ilişki kurmak Yani esas olarak ben ya da benlik bireyin kendi dışındaki dünyaya uyumunu sağlamaya çalışan bir yapı oluyor. Şimdi ara veriyorum dönünce devam edeceğim.