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TEACHER QUESTIONS AND STUDENT TALK IN ENGLISH MEDIUM INSTRUCTION CLASSROOMS IN A TURKISH HIGHER EDUCATION SETTING

MASTER'S THESIS

Eda GENÇ

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Assoc. Prof. Dr. Doğan YÜKSEL

Tezin Kabul Edildiği Enstitü Yönetim Kurulu Karar ve No: 16.07.2020 -2020/17

KOCAELİ 2020

ACKNOWLEDGEMENTS

I would like to express my deepest gratitude to my dissertation advisor Assoc. Prof. Dr. Doğan YÜKSEL for his precious guidance and support. Without his guidance, expertise and care in detail, this master's thesis would never have finished. He has contributed a lot both to my study and my future career.

I also would like to thank to the members of my dissertation committee Asst. Prof. Dr. Mehmet ALTAY and Assoc. Prof. Dr. Ali Karakaş.

Moreover, my special thanks go to the lecturers and the students who accepted voluntary participation in this study.

I would also like to thank Fatma EGE. We always exchanged valuable field knowledge with each other during our dissertation writing process and I felt her support during all process.

I should also express my sincere thanks to my colleagues Sema AYDIN and Mustafa AYDIN who demonstrated all kinds of assistance to complete my dissertation.

Last but not least, I would like to express my special thanks to my mother, my father, my sister Şaziye ÇELEBİ and her husband Fazlı ÇELEBİ for their support and encouragement during my study. I am very grateful to my parents as they are always there for me with their invaluable help during all my life.

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ÖZET

20. yüzyılın ikinci yarısında başlayan küreselleşme neticesinde İngilizce, anadili İngilizce olmayan konuşanları tarafından en çok kabul edilen ortak dil olmuştur. Bu süreç yükseköğretim kurumlarında uluslararasılaşma sürecini başlatmış ve yüksek öğretim dil politikaları alan derslerinde İngilizcenin öğretim dili olarak kullanılmasına doğru evrilmiştir. Bu bağlamda çalışmanın amacı Türkiyedeki bir yükseköğretim kurumunda, Öğretim Dili olarak İngilizcenin (ÖDİ) kullanıldığı derslerde öğretmen soruları ve öğrenci cevaplarını araştırmaktır. Aynı zamanda, çalışma Boyd'un (2015) taksonomisine göre tipik ve kritik öğrenci söylemlerinin yanı sıra, öğretmen sorularının konuşma kapsamı, tipoloji, rastlantısal, yakınsak ve ıraksak perspektiflerden detaylı bir biçimde incelenmesi aracılığı ile öğretmen ve öğrenci arasında oluşturulan etkileşimi araştırmıştır. Çalışmada farklı disiplinlerden ÖDİ kullanılan 10 derste video kaydı aracılığı ile sınıf içi gözlem yöntemi kullanılmıştır. Çalışmada öğrencilerle ortak anadili kullanan 7 öğretim görevlisi bulunmaktadır ve hepsi kurum tarafından benimsenmiş ÖDİ politikasına paralel olarak alan derslerini İngilizce aracılığı ile anlatmaktadır. Transkripsiyon, indeksleme ve indirgeme aşamalarının ardından Nvivo (sürüm 12) programı aracılığı ile araştırmanın odağındaki kalıpların kodlaması gerçekleştirilmiştir. Temel bulgular, en sık öğretmen sorularının matematik ve mühendislik dersindeki öğretim görevlileri tarafından oluşturulduğunu göstermiştir. Ayrıca öğretim görevlilerinin çoğunlukla metin esinli, özgün ve ıraksak sorular yerine metin tabanlı, cevapları bilinen ve yakınsak sorular kullandıkları ortaya çıkmıştır. Öğrencilerin sınıfiçi etkileşime yüksek oranda katılım sağlamalarına ve öğretim görevlilerinin sorularının yarısından fazlasının cevaplanmasına rağmen, öğrenci cevapları yüksek bilişsel beceri gerektirmeyen tipik cevaplar olarak bulunmuştur. Çalışma, öğretim görevlilerinin, soruları daha işlevsel kullanabilmek adına, pedagojik becerilerine ve sınıf içi söylem yeterliliklerine yönelik eğitim çalışmalarına ihtiyaçları olduğunu açığa çıkarmıştır.

Anahtar Kelimeler: Öğretim dili olarak İngilizce, öğretmen soruları, öğrenci cevapları, sınıfiçi söylem, alan dersi, Nvivo

ABSTRACT

As a result of globalisation in the world since the half of the 20th century, English has become the most accepted lingua franca among the non-native countries. Thus, the language policies in HE have tended to adopt English Medium Instruction in content courses with the motivation of internationalisation. Consequently, there have been some language-related concerns with the development of this newborn domain. At this point, the main purpose of this study was to investigate the lecturers' questions and the students' responses in EMI courses in a Turkish HE setting. Additionally, the study examined the classroom interaction through a detailed investigation of teacher questions in terms of the scope of talk, typology, contingency, the convergent and divergent dimensions as well as typical and critical student talk according to the taxonomy of Boyd (2015). As to the data collection process, classroom observation method through video recording was used in 10 EMI courses from different disciplines. There were 7 lecturers who share the same first language with the students. After the transcription of all the sessions, indexing and reduction of the data; the coding of the patterns was carried out by Nvivo (Version 12). Major findings demonstrated that the most frequent questioning was utilized by the lecturers in mathematics and engineering courses. Additionally, results revealed that the lecturers mostly used text-based, display and convergent questions rather than text-inspired, authentic and divergent questions. Despite the facts that there is a high level of student involvement during the interaction and over the half of the lecturers' questions were responded by the students, almost all of the responses from students did not necessitate high cognitive skills. Thus, the study unpacks a need for training of EMI lecturers in terms of pedagogical skills and classroom discourse competence to use the questions more functional for the sake of students' involvement into classroom interaction and increasing their learning.

Keywords: English medium instruction, teacher questions, student responses, classroom discourse, content course, Nvivo

LIST OF ABBREVIATIONS

CLIL	Content and Language Integrated Learning
EAP	English for Academic Purposes
EFL	English as a Foreign Language
ELF	English as a Lingua Franca
EMI	English Medium Instruction
ESL	English as a Second Language
ESP	English for Specific Purposes
HE	Higher Education
L1	First Language/Native Language
L2	Second Language
ÖSYM	Öğrenci Seçme ve Yerleştirme Merkezi (Student Selection and Placement Centre for Higher Education)
SCT	Student Critical Talk
STT	Student Typical Talk
YÖK	Yükseköğretim Kurulu (The Council of Higher Education)

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INTRODUCTION

This qualitative study investigated the use of questioning by the lecturers and the responses of the students in an EMI setting. The study also examined the interaction established through teacher questions and student responses to these questions. The scope, the typology and the contingency of teacher questions have been taken into the investigation as well as contingent and divergent dimensions of teacher questions beyond the categorization of teacher questions within the scope of bad or good. The responses of students were analysed to see the function of teacher questions as typical and critical, each of which documents an implication about classroom discourse.

For the aforementioned purposes, the study used social interactionist perspective which focuses on the interaction and discourse and which holds a discourse analysis for classroom interaction framework. The study was implemented in an EMI Turkish HE institution with 7 lecturers. The data was collected by classroom observation method by video recording of 10 EMI courses from different disciplines. For the data analysis, all the sessions were transcribed, indexed and reduced to have the basic patterns under investigation. One expert reviewed 15% of coded data for ensuring the reliability of the study. For a better understanding of the findings, the quantification and the frequencies of the data were also presented.

One of the primary results of the study was that the lecturers preferred to use text-based, display and convergent questions rather than extra-textual, authentic and divergent questions. These findings have revealed some pedagogical implications to the EMI lecturers. The lecturers can keep the control of the discourse by questions. If the lecturers use questions more satisfactorily in IRF chain, they can shorten the distance between the students and themselves and also they can make the content subject more approachable to the students. All in all, interaction should be understood by EMI lecturers if they would like to promote learning.

CHAPTER I

1.INTRODUCTION

1.1. INTRODUCTION

This part presents the background of the study as well as the statement of the problem and significance of the research. Then, it will focus on the aim and the research questions of the study. Additionally, the operational definitions are also given at the end of this section.

1.2. BACKGROUND OF THE STUDY

Since the second half of the 20th century, there has been an ever-evolving process in technology and business. Furthermore, there have been developments in technological tools, science, advertisement, trade among the nations and economy. The adoption of these developments for a country or nation reveals the need for an international medium not in one country's itself but also in a global phase among countries which are far from each other. As a result of this global need, English has been adopted as an international language, the *lingua franca* of the new globalizing world by the establishment of United Nations and World Bank which has led to facilitate the communication among the countries however different they have been shaped in terms of language culturally, economically or politically. So, it has been proven that English is an inevitable component of the globalisation process of the world as a medium of communication (Seidlhofer, 2003: p. 46). As English has become the most significant means of the globalisation process, the transition to this process by the countries necessitate having the proper skills in English by their nations.

On the other hand, the effects resulted from the use of English and its implementation is not the same all across the world as it is stated by Kachru (1985). He categorized the countries using English under three phases which are called circles in which there are different speakers of English. The speakers whose first language is English are located in Inner Circle such as the UK and the USA. In the Outer Circle, there are countries mostly colonized in the past and use English as an official language or their second language like India. In the third circle which is called Expanding Circle, there are countries like Turkey which use English as a foreign language. By the effect of huge world transition to globalisation, some vertical and horizontal transitions were implemented between these circles. As the number of English speakers increase, the speakers of Outer Circle convey to the Inner Circle and the speakers of Expanding Circle are drawn to the Outer Circle (Graddol, 1997: p. 4). These circles and movements between the circles unveiled a newly accepted concept that English is not only managed by its native speakers but also its second and foreign speakers. This currently accepted fact demonstrates that more research should focus on English as a lingua franca and how this language is handled with (Kirkpatrick and Barnawi, 2017: p. 5). All in all, English has become dominant all over the world as it is learnt as a foreign language in most of the countries through education, media and technology so it can be called as a global language (Crystal, 2003: p. 30).

According to Seidlhofer (2004: p. 211-212), the foreign language speakers of English is as many as its native speakers. Thus, it can be assumed that English as a lingua franca (ELF) includes both speakers in its notion. The countries which adopt the importance of ELF and which would like to globalise have brought about some innovations in their language policy of education system. While some countries have started mobilization between one another, the others enable their people to attend to mobilization individually. Thus, the condition of people being competent to have a job in the global arena is to be proficient in EFL as well as their L1. Many countries have altered their education system to make their people fully equipped for their struggle in the global market.

Undoubtedly, Higher Education (HE) is one of the domains that mostly affected by the transition of countries' education. With the reform of Bologna Process which is based on the target to enhance academic mobility to synchronize European Union in HE and promote employment, HE went into a new process (Coleman, 2006). A growing internationalisation has been evolved in universities which include all global dimensions in missions and policy of HE (Knight, 2004: p. 16). In other words, internationalisation in HE has necessitated to integrate some new concepts like partnership, mobilisation, exchange into traditional proceedings with the medium of instruction. In this context, universities have started to give special importance to English and decided to make it an essential instrument of their education policy. In an attempt to increase the quality of their education and for the sake of holding together both national and international students who seek a qualified education abroad, universities adopt EMI either fully or partially.

Considering the developments by globalisation in the world and internationalisation in HE, Turkey is one of the affected countries by these processes. There is a growing demand for EMI in HE in Turkey (Sert, 2008: p. 157) and it is widely used in most of its state and foundation universities. When it comes to first years of EMI in HE in Turkey, it was firstly accepted by one of the state universities, Bosphorus University in 1912 and then Middle East Technical University in 1954. Afterwards, some foundation universities, namely Bilkent University in 1984, Koç University and Sabancı University in the 1990s announced that they deliver courses through EMI in their programs (Kırkgöz, 2005: p. 102; O'Dwyer and Atlı, 2018: p. 295). Since 2000, there has been a rise in accepting EMI at universities and they have promoted their marketing with the fact that they hand over their courses through EMI (Macaro et al., 2016: p. 52). According to the verified data by Student Selection and Placement Centre (Öğrenci Seçme ve Yerleştirme Merkezi [ÖSYM], 2018), 61 (47%) of state universities and 56 (72%) of foundation universities have at least one program with English Medium Instruction (EMI). It is clear that there is an increase in EMI programs in HE parallel with the increase of the universities in Turkey. Parallel to the expansion of EMI in HE in Turkey, there is also a growing debate about the implementation of education through a foreign language and the role of EMI in courses.

Briefly, EMI has been an attractive discussion topic in Turkey as in many other countries. Thus, the current study is conducted with the aim to fulfil a gap in this newly emerging field which needs many various research studies from different perspectives.

1.3. STATEMENT OF THE PROBLEM

As it is seen in many domains, English has expanded rapidly in HE to promote the academic quality in both national and international borders. Under the primary aim of being an internationalised institute which is seen as a guarantee for a place in the globalized world, universities have many various reasons for adopting EMI. The basic reason is being a universal university and having a quite better place in university ranking across the world (Civan and Coşkun, 2016: p. 1999). This reveals the fact that HE institutions feel the necessity to charm the students with a multicultural perspective. Furthermore, these institutions would like to take the economic advantage of EMI by the students who come from abroad (O'Dowd, 2018: p. 554). Apart from all these, some universities adopt EMI as they find access to current coursebooks and other materials in English related to the content courses easier (Ali, 2013: p. 74). Some other universities simply would like to prepare their students to make them more competitive for the competition in the globalised world (Graddol, 2006: p. 75). In other words, the Englishization of HE has become an obligation for universities (Coleman, 2006: p. 9). This situation is also observed in HE institutions in Turkey which increases the number of EMI programs day by day.

In terms of HE in Turkey, there are two types of implementation of EMI in classrooms of HE. While some of the universities use EMI in all programs of them totally, others use EMI at a few programs. With partial EMI programs, either the universities would like to use it as a transition to full EMI policy or they would like to keep the students who do not prefer to study in an EMI program. Whichever kind is used in HE; it is clear that the stakeholders establish their journey to EMI providing that both the lecturers and the students have the competency to access the required result. In other words, the universities would like to implement EMI in their

institutions meticulously which means that the lecturers would teach the content through English and the students would learn the content. However, the courses implemented via EMI in HE in Turkey cannot be sustained without any problems about the implementation in the classroom or pedagogical training for EMI as in many other countries which are non-native English speakers. There are arguments about the negative effects of EMI across the world. It is claimed that academic staff can feel pressure when they publish their works in another language, the students may go into a degeneration process as a result of mobility for EMI, the staff and the students may not fulfil the requirements in terms of language proficiency, the students may fail in interaction with their instructors in EMI classrooms (Airey, 2011: p. 8; Coleman, 2006: p. 7; Doiz et al. 2013: p. 215; Phillipson, 2006: p. 19) Exclusively, there are opponents of EMI as well as defenders of it in Turkey. In terms of controversies, there is a debate between national and bilingual ideals (Selvi, 2014: p. 146). It is also claimed that EMI harms the students' learning content subject and their professional development (Sinanoğlu, 2000: p. 78).

As a result of these predicted problems and gaps, there has been an increase in the number of EMI studies in Turkey. For instance, the first studies (Başıbek et al., 2014: p. 1824; Demircan 1995: p. 19; Kırkgöz, 2005: p. 116; Kiliçkaya, 2006: p. 2) focused on the attitudes of lecturers and students toward EMI. The studies conducted later (Sert, 2008: p. 156; Kirkgöz, 2014: p. 455) focused on the effects of EMI on the lecturers and the students, the challenges in EMI from the perspectives of lecturers and students, the efficacy of preparatory classrooms on EMI. The studies mostly use a quantitative methodology or they use a qualitative method with semi-structured interviews. Yet, as Macaro et al. (2018: p. 62) stated that studies conducted for investigation of the interaction in EMI classrooms are quite rare when it is compared with the studies about classroom discourse and interaction in the secondary education phase. In other words, there is a need for observation of the classroom discourse of EMI in HE to see the problems and needs in an authentic context. The requirement for the studies about classroom discourse and interaction in HE of EMI is a valid situation for Turkey, too.

As emerged from the review of literature, the investigation about the interaction established by the participants in EMI classrooms is so rare that it still needs further research. In other words, the previous studies about EMI have remained inadequate in close analysis of what actually happens between teachers and students in authentic EMI classrooms. To fulfil this gap in related literature, the present study aims to contribute to classroom discourse of EMI in HE in Turkey by providing an insight into interactional skills of the participants with a close examination of teacher questions and student responses.

1.4. SIGNIFICANCE OF THE STUDY

Various studies investigated EMI in HE in Turkey that revealed the perceptions of the stakeholders, the effects of EMI from the perspectives of both students and lecturers, pros and cons of EMI which cannot be underestimated as they contribute to the understanding the process of EMI from different perspectives (Dearden and Macaro (2016: p. 464, 465; Evans and Morrison, 2011; Joe and Lee, 2013: p. 205; Li and Wu, 2019: p. 21; Rogier, 2012: p. 122; Yeh, 2014: p. 305). In this context, the present study will also shed light and extend our knowledge about EMI implementations in the classroom by presenting the classroom discourse and teacher-student interaction in EMI classrooms in a HE institution in Turkey based on teacher questions and student responses. In this way, it contributes to the understanding of benefits and difficulties in implementation of EMI. However, a comprehensive look at the classroom interaction in HE of EMI can be obtained from further research as it is viewed from one perspective in the present study.

As the interaction in EMI classrooms in HE is an issue that has not been investigated much in Turkey, as well as in the world, the present study can give insights about needs for training and professional development pedagogically regarding the lecturers of EMI. It can motivate the lecturers to make some rearrangements with an emphasis on classroom discourse. There are some clues for the lecturers by revealing the importance of appropriate classroom questioning. As one of the classroom strategies, teachers' questions can attract the attention of the lecturers more by the present study. The study also investigates the classroom

interaction from the perspective of the students by examining their responses. Thus, it unpacks how language and content are oriented in a content-focused context from a bilateral perspective. This has established a piece of more solid evidence to understand the significance of pedagogical and language training of EMI lecturers since it is accepted that the language of teachers affects the students' understanding of the content knowledge (Doiz et al., 2013: p. 217). All in all, analysing the discourse of EMI that lecturers create to convey content subjects to the students and build space to the students for learning through a foreign language is assumed to enlighten and conduce to a possible improvement in the quality of students' learning and teacher questioning.

The present study brings about insight for various issues including language policy of HE, preparatory classrooms in universities in Turkey, the issue of partial and full EMI implementation in HE. Although the study is mainly focused on the how classroom discourse is shaped by classroom members in EMI classrooms, it can provide some significant clues about the medium of instruction adopted by university management by focusing on actual practices in classrooms. The present study can give an idea about which dynamics should be paid attention during the decision-making process of the universities' language policy. According to the Kırkgöz (2009: p. 92), the curriculum of the preparatory classes in HE in Turkey falls behind the needs of the students in terms of linguistic competence in content courses. The student-perspective of the study can also illuminate a possible needs analysis work for the precautions to be taken by the stakeholders for the sake of enriching the transition process between language courses and content courses.

1.5. AIM OF THE STUDY

Teacher discourse can be highly established by the use of strategies that promote the transmission of information (Walsh, 2011: p. 11). These strategies are linguistic tools that speakers employ intentionally or unintentionally to reach a predetermined and intended communicative goal. Among the most of discourse strategies that teachers employ to interact with the students, *questions* seem to be bridging episodes that bring together the input of lecturers and output of students. In

addition to this significant role that they play in providing the lecturers to create a collaborative environment where knowledge share and exchange are implemented, the frequent use of questions in classroom discourse and their functions in shaping the lectures and leading to student learning make questions crucial tools (Sánchez-García, 2016: p. 4). They have profound impacts on students' incorporation with the involvement in classroom discourse and comprehension the knowledge presented and discussed (Chang, 2012: p. 113; Dafouz and Sánchez-García, 2013: p. 144; Sánchez-García, 2010: p. 70). Furthermore, the investigation of these interactive devices can give clues about if their use matches with the pedagogical aims of the lecturers. In other words, when the language use and pedagogical goals of a lecturer corresponds, the opportunities for learning by the students can be increased (Sánchez-García, 2016: p. 5). Because one of the ways to observe students' learning is to observe their talk and especially the responses triggered by teachers' questions.

As a consequence, this study is based on a classroom discourse analysis of 10 courses implemented in EMI classrooms. It aims to explore the relationship between teacher questioning and student talk since it is assumed that functions of various question types in various ways to assist to student talk as an outcome. Beyond looking at the quality of the questions as good or bad, the study aims to better understand how teacher questioning in EMI classrooms promote interaction, common understanding and inquiry of knowledge by a student. From these perspectives, this study is expected to shed some light on the pedagogical and linguistic training of the lecturers of which they take advantage to deliver the content subjects more efficiently and especially in harmony with the special conditions needed in EMI discourse.

1.6. RESEARCH QUESTIONS

This research aims to answer the following questions:

1. What kind of questions do the lecturers prefer to use in EMI classrooms?
    a. What is the frequency and functions of textual and extra-textual teacher questions?

b. What are the frequency and functions of the lecturers' questioning in terms of typology?
    - The frequency and function of the lecturers' authentic questions
    - The frequency and functions of the lecturers' display questions
    - The frequency and the functions of the lecturers' clarification requests
    - The frequency and the functions of the lecturers' procedural questions
c. To what extent the lecturers' questions are contingent?
d. To what extent the lecturers use their questions from the convergent and divergent perspectives?

2. To what extent the lecturers' questions are responded by the students?
    a. What is the frequency of Student Typical Talk as a response and which teacher questions promote them?
    b. What is the frequency of Student Critical Talks (SCTs) as a response and which teacher questions promote them?

1.7. OPERATIONAL DEFINITIONS

EMI (English Medium Instruction): "the use of the English language to teach academic subjects other than English itself in countries or jurisdictions where the first language of the majority of the population is not English" (Macaro, 2018, p. 37) such as Turkey. There is no aim to improve the language proficiency of the students as in CLIL.

CLIL (Content and Language Integrated Learning): is an educational approach which has a dual-focused aim to teach a content subject through an additional language which is other than the students' mother tongue.

CBI (Content-Based Instruction): is defined as an incidental learning approach in which the students learn an additional language through the content. The primary aim of this approach which is based on previous knowledge about the content subject of the students is to develop the language skills of students.

EAP (English for Academic Purposes): is an approach in which there is an aim to develop the students' communication skills in English essential for academic settings. The competence of the students gained during this process can be transferrable to the students' next academic courses.

ESP (English for Specific Purposes): is an approach of which focal point is language proficiency, discourses and genres to meet the current needs of the learners through the specific courses.

TMI (Turkish Medium Instruction): is using Turkish for all academic content subjects as a medium of instruction

HE (Higher Education): is an education stage that comes after secondary education in Turkey. It can be used synonymously with *university* or *tertiary education level.*

ELF (English as a lingua franca): refers to using English as a communication language between people whose L1 is not the same and who choose English as a foreign language of communication.

CHAPTER II

2.REVIEW OF LITERATURE

2.1. INTRODUCTION

This chapter presents EMI regarding the main concern of the study and the related researches. It begins with some essential terminologies related with EMI, various definitions of it, its implementation in HE, some drivers and challenges behind EMI implementation, its development in the world and in Turkey, the confusion in the scope, the previous studies related with EMI across the world and in Turkey, and lastly the main focus of the study, teacher questions and student talk are presented. Finally, the previous studies about the question types used in the EMI context are summarized.

2.2. GLOBALISATION AND INTERNATIONALISATION

The world has turned into an increasing consciousness as a whole with the interdependence of the countries. In other words, the process of intensifying the worldwide relationships that connects the countries far from each other with the effects on the local events has been started up. So, globalization is defined as the integration and interconnection of all the fields of local activities. It emerges with the urge of objects, symbols and activities in politics, culture, technology and ecology (Lakoff, 2004: p. 34). The global flow of knowledge, the cross-border mobility of the students and the staff, global comparisons and rankings, all have affected educational implementations, especially at the national level.

When it comes to the globalisation of English, Crystal (1999: p. 60) defines it as English being used all across the world by the countless users by its fast expansion as a second or foreign language. There is a huge remarkable spread of English globally and most of the information change is fulfilled by English, so it has become a necessity to have the competence of it (Crystal, 2003: p. 86) and there is an astounding acceptance of English as a power (Bamgbose, 2001). English has become a critical factor that should be taken into language policies of the nations which would like to be globally respected (Spolsky, 2004: p. 39, 77).

Internationalisation which is often confused with globalisation is not a new term used for political or scientific relations in the 1980s. But after the 1980s, its popularity and usage in education field increased. Before that time the terms 'international cooperation' or 'international education' were used (Knight, 2013: p. 85). In those years, its meaning was almost equal to the exchange of the staff or the students. However, after the 1990s, internationalisation took the meanings of innovation in the curriculum, communication technologies, the 'Bologna Process', the use of new information. As the globalisation process has gained power, the internationalisation efforts of HE have gained momentum (Maiworm and Wachter, 2002: p. 17). So international English which is also named as Global English, World English, General English is a concept of its use as a global tool of communication in its numerous varieties (Crystal, 1988). This international feature of English has become an inevitable issue in the curricula of the education policy of almost all countries across the world (Tickoo, 2006: p. 171). English in education does not only means of teaching English as a second or foreign language but also acceptance of it as a medium of instruction in the curriculum (Jenkins, 2003: p. 26).

Internationalisation of HE is defined neutrally regarding any ideology as 'the process of integrating an international, intercultural or global dimension into the purpose, functions (primarily teaching/learning, research, service) or delivery of higher education' (Knight, 2003: p. 2). The internationalisation of HE both provides the opportunity to teach and learn in a country from an international view and supply some programs to students and staff so that they can join to mobility in abroad (Knight, 2003: p. 2). The mobility gives a face-to-face or distance education chance

to the students and learning in a virtual environment (Knight, 2005: p. 7). Wachter and Maiworm (2002: p. 79) list the objectives of internationalisation of the HE institutions after a comprehensive study in Europe and summarize it under four main categories: 1) to give the institution an international appearance in general, 2) to increase both incoming and outgoing mobility of staff and the students, 3) creating and maintenance partnership with the institutions, 4) improvement of the quality of teaching and learning. Wachter and Maiworm (2007: p. 41) make the same categorisation to summary the reasons for not accepting English as a part of internationalisation: 1) insufficiency of financial resources for the development of EMI programs, 2) lack of academic staff with adequate English language proficiency, 3) inadequacy of faculties' interest for EMI, 4) other reasons. For the sake of the aforementioned objectives, universities have gone into internationalisation either 'at home' or 'abroad'. Furthermore, through the benefit of developing global technology, universities have adopted "internationalisation at a distance" as a third alternative way (Mittelmeier et al., 2020: p. 2,4,5). To be more clear, universities have focused on the movement of the education in their national borders with the acceptance of international students, receiving or sending students in cross border domain which is the adoption of the internationalisation abroad. Some of the universities have preferred to make some adaption in their curriculums with the integration of national and international dimensions and with the change of pedagogical tools which is referred to internationalization at home. Alternatively, a few of the universities have tried to keep up with the process by using the benefits of the growing advances in educational technology which bears internationalisation at a distance. All in all, HE institutions have adopted the internationalisation process and have taken the necessary steps for this process.

2.3. ENGLISH AS A LINGUA FRANCA

Lingua franca is a term that is used for labelling a contact language which is mediation for communication between speakers whose first language is not common (Mauranen, 2018: p. 106). English is the most accepted language as lingua franca all around the world among the non-native English speakers (Jenkins 2018: p. 1). So, English as a Lingua Franca (ELF) is the adoption of English as the only common

communication tool among the speakers coming from different first language (L1) background (Seidlhofer, 2004: p. 215). The exclusion of native speakers in this most popular definition has changed into adopting them and ELF is defined as a 'contact language' between speakers at least one of whom uses English as a second language (Mauranen, 2018: p. 106).

The recent position of English is a collective outcome of two main historical phenomena: Britain's colonial growth and current activities of the US (Graddol, 1997: p. 5). Accepted as lingua franca all around the world, English is seen as a competence criterion for keeping up with the great change in business, trade and especially academic world (Byun et al., 2010: p. 433) as a result of a rapid transition and growth so it has become a medium of instruction almost all over the world (Dearden, 2015: p. 4). It has improved all around the world at a remarkable pace in late decades and it keeps its existence as one of the most current topics in the academic world of the countries where English is mostly used as a second language and as a foreign language (Dearden, 2015: p. 32).

The effects of English may not be the same all around the world or it may have diverse effects depending on its context. According to Kachru (1985), there are three types of English speaker each of which is positioned in a phase. The speakers of English as the first language are in the Inner Circle which can be exemplified as the UK and Australia. The second speakers of English are replaced in the Outer Circle like South Asia and the last part, Expanding Circle, includes the speakers using English as a foreign language. In the 21st century, the more the number of English speakers grows, the more second-language speakers of English are conveyed to Inner Circle of first language speakers and the more foreign-language speakers are drawn to the Outer Circle of second-language speakers as the English language takes new forms as a result of world transition (Graddol, 1997: p. 4). These circles prove that as a concept, English is not governed by its native speakers so there is a need to focus on the countries where English is used as ESL and EFL to see how they handle with this concept (Kirkpatrick and Barnawi, 2017: p. 48).

With the rapid improvement in internationalisation, the use of English as a common language of instruction has been accepted by most of the HE institutions. One of the most desired world trends is teaching courses through English instruction in HE (Graddol, 1997: p. 11). Even beyond the use of English as instruction, some countries take governmental steps to increase the use of English as instruction which resulted with English being accepted as a global academic language (Yao et al., 2019: p. 210). Especially after the 1990s, most lecturers find themselves in the fact that 'no one's native language is English' so both students and lecturers have a need to use English as a tool for communication and they have to struggle with the challenges coming with it (Björkman, 2017: p. 78). The aims under the use of English is much more than ever before such as technology, entertainment, new thinking in management, economics and naturally in education. Because 'general English' is no more seen as a sufficient criterion to ensure the competence of a country in English (Macaro 2015: p. 5). Given an important place to English in the world, a developing country must realize the necessity for a shift in its language education policy with the aim of recognition (Taquini et al., 2017: p. 39) although the issue have some opponents who claim that it is a risk pedagogically as the students may have hard times to comprehend the content through an unknown language (Leibowitz, 2005: p. 670).

2.4. ENGLISH MEDIUM INSTRUCTION

There are quite various labels and terminological expressions used for the definition and explanation of EMI depending on the context. According to the most recent and accepted definition, EMI is "the use of the English language to teach academic subjects other than English itself in countries or jurisdictions where the first language of the majority of the population is not English" (Macaro et al., 2018: p. 37). The rationale behind this definition is to underline the separation between some countries like Canada and the USA where English is used as the first language by the majority of the population and those where English is not used as the first language by the majority regarding the function of English to teach the content subject. Dearden (2015: p. 2) supports this definition and emphasizes the usage of English as a tool for the aim of teaching the content subject in academic fields of the

countries where the first language of the majority is not English. In these definitions, it is explicitly avoided to give a direct reference to the purpose of teaching English as a language at the same time or providing the students' English language proficiency.

Smit and Dafouz (2012: p. 4) state the main function of EMI as "focuses on content learning only" clearly in their definition. As the last evidence for the framework of EMI, Unterberger and Wilhelmer (2011: p. 95-97) underline that the main focus of EMI is content subject and there is no overt aim of teaching language. The common implication of these definitions is that similar subjects are delivered by HE institutions so they are comparable with the ones in Anglophone countries (Margic and Vodopija-Krstanovic, 2018: p. 2).

The importance of English has gained acceleration in HE as a result of the internationalisation process of HE and it has led to an increasing EMI approval through which the English language is used as a device in non-native contexts to teach the content subject (Doiz et al. 2013: p. 217). However, the deviation is a difficult process and there is always possibilities of ambiguity or refusal to the new process (Berg and Ros, 1999: p. 900). In other words, some objective conditions like technology and budget possibilities are very critical for the implementation of EMI in HE. Moreover, the success for the implementation of EMI much more depends on the perceptions, concerns, skills and experiences of those who are involved in the process (Klaassen and Graaff, 2001: p. 281). There may be a curiosity what this process means to the lecturers and the students, what the effects of this process are on those involved and their tasks, whether the preparation for this innovation is adequate or not (Berg and Ros, 1999: p. 900), whether there is EMI training for the lecturers before engagement in classes and which approach is the best for this training (O'Dowd 2018: p. 554). EMI is an innovation in which all of these facts are relevant (Klaassen and Graaff, 2001: p. 288). Thus, before HE institute accepts EMI in its education policy, some basic principles should be taken into consideration: 1) the pedagogical implications and the way to implement it and 2) the relationship between the effect of content course and the effect of EMI (Ozer and Bayram, 2019: p. 66). Airey at al. (2017: p. 571) suggest that a country should ensure and design

English language teaching in its all education policy to improve the language proficiency level of the students in all levels before success in EMI.

2.4.1. English Medium Instruction Profile in Higher Education and Profits

As it is seen in many domains, use of English also spread in HE domain with the requirement of lingua franca to promote academic communication both in national and international borders (Broggini and Murphy, 2017: p. 325). Although there is a fast-growing EMI acceptance in secondary and even in primary education, it basically takes place in HE (Murphy, 2014: p. 130). With the changing role of English as an international communication tool, the number of universities delivering the courses through English instruction has increased (Kirkpatrick, 2011: p. 5). The increase in acceptance of English in HE is an inevitable result of the spread of English all around the world and motivation of internationalisation (Jenkins 2018: p. 8). Wilkinson (2017: p. 60) reports with his research through Google Scholar over six years that there is a considerable growth of EMI in HE.

Universities are compelled to arise in the market place along with being a service place which is resulted with restructuring and adjustment in purposes, functions and academic policies (Dixon, 2006: p. 327-329; Neave, 2000: p. 17-18; Welch, 2001: p. 486). As a natural result of globalisation, there is a change in the codes of world trade system and innovative work patterns which have brought about a rapid increase in the use of English (Graddol, 1997: p. 33). Thus, the world moves to an internationalisation process in the education field as well in most fields (Tsui and Tallefson, 2007: p. 260). According to Knight (2004: p. 6), internationalisation in HE is a process that evolves constantly and include all global dimensions in missions, purposes and education process of universities. In other words, internationalisation integrates some new concepts like a partnership, getting the benefit, exchange into traditional proceedings in HE (Knight, 2013: p. 89). Also, an internationalisation process at home requires a change not only in education policy or aims but also in the curriculum of the universities (Nilsson, 2003: p. 39) which means that it is essential to go through a change at the micro-level as well as at macro level. As a result of globalisation in general aspect and internationalisation at

home, it has become inevitable to observe an acceleration in the spread of EMI in HE. EMI is an academic component which has started to exist recently but still evolves rapidly (Macaro et al. 2018: p. 45).

The programs in HE delivering the courses through EMI are aimed to be an instrument to eliminate language obstacles to improve language competence of local students and acceptance of foreign students (Wächter and Maiworm, 2014: p. 56). EMI means no longer only going to a university in UK or US but most of the European countries after the initiation of Bologna process and the other ones which have announced their adoption of EMI in HE with internationalisation trend (Dearden 2015: p. 24). The desire to deliver the courses through English in these countries rather than national language is quite understandable. The shift to EMI in HE has some long- term benefits for the universities. First, it stimulates and advances the use of English by graduates many of whom come for their English language proficiency and skills from developed and developing countries. Secondly, education through English reduces social privilege by starting social change in a wide range. Lastly, the expansion of English medium instruction in education accelerates the internationalisation of universities so the developing countries gain a new position as exporting education service (Graddol, 1997: p. 45).

Although there are studies which have revealed the negative consequences of EMI (Joe and Lee, 2013: p. 205; Klaassen, 2003: p. 135), there are some scholars who play important roles in the field prefer to focus on the positive effects of EMI. Macaro et al. (2016: p. 52) express that universities declaring EMI in their education policy are perceived as more prestigious than the other ones. In addition to HE institutions maintain EMI for recognition, the families call for EMI as they believe its benefits for further education after under graduation, for a more qualified life, for much more opportunity to find a job in a global market (Gao, 2008: p. 601). On the other hand, EMI is accepted as more authentic context to learn a language than EFL classes as it includes socialisation, focusing on the topics and situations (Macaro, 2015: p. 6).

2.4.2. Drivers and Challenges of English Medium Instruction

The HE policies in Expanding Countries encountered the necessity to implement an education which can be compatible with the era of internationalisation and globalisation. It is possible to prove variable aims and reasons for accepting EMI in HE level. As to the preference of EMI by HE stakeholders, the most prominent purpose is being a universal or an international university and take a better place in universal ranking (Civan and Coşkun, 2016: p. 1999; Lehikoinen, 2004: p. 42; Rauhvargers, 2013, p. 17-21) which produces the fact that HE institutes need to influence the students from a multicultural perspective (Ritzen, 2004: p. 34; Belhiah and Elhami, 2015: p. 7). Additionally, some of the HE institutes have EMI at their some programs for being internationalised and to acquire much more income through the students who come from abroad (O'Dowd, 2018: p. 554; Symon and Weinberg, 2013: p. 23; Whitsed and Volet, 2011: p. 147), to compete for success between foundation and state universities (Dearden, 2015: p. 19) and due to an increase in private investment and decrease in education at state universities in some countries (Knight, 2004: p. 7). Most of the universities want to prepare their students and make them competent enough to handle with the competitive environment in the world (Graddol, 2006: p. 75). As it is easier to access current coursebooks, research papers and most of the materials related with the content of the course, a few universities accept EMI at some of their programs (Graddol, 1997: p. 12) which is also labelled as 'intrinsic value of English' for the increase of EMI in HE (Ali, 2013: p. 74). A graduation degree from EMI programs give local students the opportunity of a higher-qualified job more easily (Dearden, 2015: p. 18; Coleman 2006: p. 5).

As it is seen from the motivations for the preference of EMI in HE, it is almost primarily driven by prestige and financial reasons. Nevertheless, there is less concern with the practicalities, in other words, on the most affected ones, staff and students (Jenkins, 2018: p. 9). The stakeholders usually modify their policies at a macro or meso level without taking into account the fact that EMI implementation may have some difficulties at a classroom or institutional level (Walkinshaw et al., 2017: p. 7). One of the current debates about EMI is the role of English used in HE supporting EMI courses. There is a range of English use in EMI courses from Native English

Speaker (NES) to Non-Native Speaker (NNES) lecturers. The natural English used in Anglophone setting may be beyond the proficiency level of the students coming from Non-Anglophone ones and may cause their alienation to the content of the course (Jenkins, 2018: p. 3). On the contrary, students can be critical for the English communication competence of their lecturers or use of their first language during the courses (Galloway et al., 2017: p. 21-27; Byun et al., 2010: p. 447). For a solution to language proficiency problem of EMI in HE, some countries adjust a CEFR B1 level before the enrolment of the students and some others like Turkey and Saudi Arabia require the students attend the Preparatory Year Program (PYP) courses before they start to take their EMI courses and getting CEFR A2 level is a demand for passing the year (Dearden, 2018: p. 328). Some countries in Europe select the students by already decided English proficiency level (Macaro 2015: p. 7).

One repetitive problem about the implementation of English during EMI courses is the role of the lecturers and their methodologies (Carrió-Pastor, 2019: p. 1). The administration in some HE context may be ignorant about the teaching habits and whether the lecturers stick to the decisions taken for internationalisation politics (Costa and Coleman, 2013: p. 14). Almost there is no country accept EMI in their all education policy as implementation EMI at a university means darkness for the lecturers as the pedagogical framework is ambiguous (Briggs et al., 2018: p. 678; Dearden, 2018: p. 326). So, the rapid transition to EMI in HE not only restrains to observe pedagogical effects of EMI as a new method in terms of language learning but also ignores the comprehension problems of the students in terms of content (Macaro et al., 2016: p. 52). In addition to the fact that the lecturers in EMI programs are challenged by teaching with another language and in need of new methodological approaches (Ball and Linday, 2012: p. 33), there are also need to create more student-centred classroom environments with the help of sources and scaffolding (Cots, 2012: p. 108).

Despite the pros and cons, EMI shows an irrepressible increase and development in the world. Its spread is not identical in all countries in the world. It has different development background depending on the context. So, it is beneficial to look at EMI process comprehensively in the world.

2.4.3. The Process of English Medium Instruction in the World

In the late 1990s, the terminology EMI took a rapid change through the adjustments in European HE because of the initiation of Bologna Process which is based on the target to enhance academic mobility to synchronize European Union HE and promote employment (European Higher Education Area and Bologna Process, 2019). Because of its status as being a lingua franca, English has become a necessity as a medium of instruction in Europe not only because of European Union requirements but also because of Bologna Process in addition to the drivers arisen from internationalization in HE (Brown and Bradford, 2017: p. 329). To better understand the spread of EMI in Europe, it is useful to take a closer look at Bologna Process.

The Bologna Process was created to establish a union in HE in the European Union. It does not aim to create a unique curriculum but it aims to make an exchange without causing a loss in the identity of the institutions. To prevent this, the process created European Credit Transfer System (ECTS) which aims to accept the credits taken from the courses from different institutions (Taquini et al., 2017: p. 40). According to the latest data delivered by Turkish Republic Higher Education Council (YÖK), there are 47 member countries, one of which is Turkey, in the process. (YÖK, 2019). Bologna Process is claimed to be equal to the internationalisation in HE as it results with mobility (Phillipson, 2009: p. 42). Academic mobility in Europe is realized by some programs like Erasmus. Erasmus was established by European Union (EU) for the purpose that not only the academics and the students in Europe but also the ones outside the borders of EU can work in EU.

Recognizing the degrees offered by the European Credit Transfer System (ECTS), mobility programs among students and staff and the projects to expand the quality of teaching in Europe have made HE more internationalised (Carrió-Pastor, 2019: p. 1). The study conducted in 19 European countries supports this fact that 8% of the programs deliver the courses through EMI, then this number increase to 100% in Netherlands and Finland in 2000s (Maiworm and Wachter, 2002: p. 24). According to the recent data in 2014, the programs delivering EMI all across Europe

is over 8000 (Wächter and Maiworm, 2014: p. 131) and over 60% of them is the postgraduate program all across Europe (Macaro, 2015: p. 4). The countries using EMI in HE in the top five are Netherlands, Germany, Sweden, France and Denmark (Tsou and Kao, 2019: p. 7-10).

The growth and expeditious increase of EMI programmes in Europe emerged from the purpose of expanding teaching strategies which are expected to induce learning much more various languages (Doiz et al. 2011: p. 345). However, Middle East Gulf States started to use EMI in their programs at the tertiary level with the purpose of teaching content subject to the students while enabling them to develop their foreign languages to struggle with the global economy (Andrew, 2017: p. 2). This does not overshadow the sharp spread of EMI in the Middle East. The Saudi Ministry of Education announced the development of English language proficiency as one of the eleven education goals and as a result of this, an increase in the number of preparation classes was observed. Unlike Saudi Arabia, EMI has already been implemented in the United Arab Emirates going back to the 1970s (Macaro et al., 2018: p. 48). After a shift from oil-driven economy to knowledge-driven one, British and American campuses have been doubled in the 2000s in the Middle East (Weber, 2011: p. 60). Specifically, in Oman, all state universities manage education under EMI as English is assumed as a reflection of international enthusiasm. But some students do not choose state universities to avoid EMI as they have fears of low proficiency language level and making a mistake in the classroom (Al-Bakri, 2013: p. 61). In Abu Dhabi, native English speaker lecturers have been hired to augment the content subjects already given in Arabic (Rogier, 2012: p. 19). There is an exception in terms of EMI spread in Qatar where there is a reverse transition from English to Arabic since it is seen as a threat to Arabic language and Islamic religion (Belhiah and Elhami, 2015: p. 4).

In Asia, the spread of EMI is inspected under the two categories by Tsou and Kao (2019: p. 7-10). English has been used as primary education language by formerly colonized Asian countries (e.g., Hong Kong, Malaysia etc.) and it has been used currently in the late 1990s in non- colonized Asian countries (e.g., China, Korea etc.). However, many countries in Asia take aggressive precautions as an answer to

the globalization and strictly use Western, specifically the USA, education policy. The study of Mok (2007: p. 433) proves that most foreign students' population was formed by Chinese in the UK in 2007. China Ministry of Education took educational reforms in the 1990s and main subject courses like Biology, Law and Trade were started to deliver through EMI which resulted in a huge amount of international student enrolment (Huang, 2011: p. 35). Like China, Japan which is ranked as the second-largest financial power in Asia also took measures especially for the improvement of low proficiency English level in education (Dearden, 2015: p. 14). While Asian countries support EMI intensely in their education policies, there are some challenges like curriculum, language proficiency level of both the staff and the students which need to be examined (Li and Wu, 2019: p. 22). As opposed to EMI reforms in Asia, Indonesia is determined to keep the idea of 'one nation, one language' in the country (Dearden, 2015: p. 19). The same uptrend in EMI was started in Taiwan in the 2000s without a top-down policy which is an obvious difference between China and Japanese (Yang, 2015: p. 365). Lastly, there has been a huge expansion in Korea after the announcement of 'Study Korea Project' by the government to provide financial support to universities, which has resulted in increasing interest of universities in EMI (Byun et al. 2010: p. 435).

There is criticism about EMI from various contexts in the world. Some of the educators are opposed to EMI with the arguments that it is a hinder in the comprehension of the content, there is a huge amount of time consumption, students feel alienation and withdraw themselves from class participation, and it creates a social upper class as some students do not have the opportunity to access EMI programs economically or socially (Mauranen et al.,2010: p. 188; Vinke, 1995: p. 43). There are arguments about the unfavourable effects of EMI. The academic staff may feel a pressure to publish their studies in another language all the time (Phillipson, 2006: p. 14) and also the students may alienate to their own culture as a result of mobility (Coleman, 2006: p. 6). Furthermore, EMI is assumed as a more painful issue than the other instructions as it is seen as a risk to assimilate the home culture (Po-yung and Hang-yue, 2014: p. 4). The students may not fulfil the requirements of the staff for English proficiency (Doiz et al. 2013: p. 215) or they may fail to interact with the instructors and to listen to them while taking notes

(Airey, 2011: p. 10). Exclusively in Asia, there are some questions about the effectiveness of EMI as it is claimed that the policymakers are more concerned with EMI than the staff and the students. (Kuteeva, 2011: p. 7).

2.4.4. The Process of English Medium Instruction in Turkey

Turkey is one of the monolingual contexts where English is used as a foreign language and it is in Expanding Circle with its non-colonial history. Teaching through EMI in education has a long background in Turkey. When a thorough investigation is conducted, it is possible to see that English is integrated into the education to build an extended communication and to establish close relationships in international phase in Turkey (Demirel, 1990). Thus, an urgent requirement for a foreign language policy to embed English in education has emerged in the 1980s (Başıbek et al., 2014: p. 1821). There are foreign language classes established in the curriculum by the Ministry of Education from primary education to HE in Turkey (Sert, 2008: p. 160). In the primary education, there are two hours English as a foreign language teaching under the name of compulsory classes for 2nd, 3rd and 4th education level in a week. It is implemented for three hours to the 5th and 6th education level in a week and four hours to the 7th and 8th education levels (MEB, 2018a). In secondary education, different programs are realized by school types. For example, it is at least five hours for 9th education level and 2 hours for the other levels in a state technical secondary school but it may change in a state Anatolian high school and even may be much more in a language class than in a social sciences class. Also, all the subjects except Turkish and social sciences, are taught through English in some private primary and secondary schools (MEB, 2018b). In the first years of English in Turkish education context, there are 193 secondary school which gave place to EMI in their curriculum (Başıbek et al., 2014: p. 1820), then this number reached to 1132 secondary schools, 717 of which is private and 415 of which is Anatolian high school (Çankaya, 2017: p. 831).

Tertiary education is managed by YÖK in Turkey. The graduates from secondary education level enrol a state or private university through their scores which they get from the university entrance exam conducted in two stages. The exam

is conducted by the Student Selection and Placement Centre for Higher Education (ÖSYM, 2018) and approximately 2 million students take this exam (Zaif et al., 2017: p. 74). As being a member of Erasmus, Turkey has also Mevlana exchange program for universities. The objectives of the program are to support the position of the country in a global platform, to enhance the opportunity to study in an international context for students, enlargement the academic staff capacity in Turkey. The program enhances scholarships for the students and staff during the exchange with the partner country (Taquini et al., 2017: p. 46).

EMI has recently been used widely in most of its state and foundation universities in Turkey as in many underdeveloped and developing countries. Regarding the first years of EMI in Turkey, it was firstly accepted by state universities: Bosphorus University in 1912, the first English-medium instructed university in Turkey, then Middle East Technical University (METU) in 1954 (Civan and Coşkun, 2016: p. 1982; Kırkgöz, 2005: p. 102; O'Dwyer and Atlı, 2018: p. 296; Selvi, 2014: p. 135). Then, it was adopted by the first private university, Bilkent University, %100 EMI in 1984 and some of the prestigious foundation universities such as Koç and Sabancı Universities adopted EMI in the 1990s (O'Dwyer and Atlı, 2018: p. 295). Other universities moved to EMI process heavily and some of them accepted it not in all programs but in some high-profiled ones with fully or partially. Since 2000, there has been a rise in accepting EMI at universities, specifically in private ones, and they have promoted their marketing with the fact that they hand over their courses through EMI (Macaro et al., 2016: p. 52). It was verified in 2010 that there were 53 state universities and two of them have adopted EMI and there were 25 foundation universities all of which used EMI fully or partially (Collins, 2010: p. 97). These numbers increased in a few years and 23 (46%) of state universities had programs with EMI (Coşkun, 2013: p. 2). In 2014, 20 % of the undergraduate programs in universities in Turkey had EMI implementation with different types of it. Also, state universities started to be perceived as more prestigious than the other ones (Arik and Arik, 2014: p. 5). The verified data by the Student Selection and Placement Centre (Öğrenci Seçme ve Yerleştirme Merkezi [ÖSYM], 2018), demonstrates that there are 130 state and 78 foundation universities in Turkey. 61 (47%) of state universities and 56 (72%) of foundation universities

have at least one program with EMI. It is clear that there is an increase in EMI programs in HE parallel with the increase of the universities in Turkey. These universities in Turkey are also accepted as more prestigious than the others and the students graduated from these universities are easily hired by governmental or private industries as they require English language proficiency and competence in the related field (Collins, 2010: p. 99).

In Turkey, there are two scenarios on the campus of the Turkish context. First, English is used as an additional language by Turkish students all of whom have the same first language which leads students to use communicative strategies. Second, English is used as a lingua franca as some universities host to both numerous international students and local ones (Karakas, 2016: p. 243). In both scenarios, local students prefer EMI programs with primarily instrumental motivations (Kırkgöz, 2005: p. 101) and it is a 'must' for getting a better job as it is in most of the countries in Europe.

There are two ways of implementing EMI in classes. The first one is to use English as the only medium of instruction in the whole university and in all programs as in METU. The second way is to use English at some programs and use Turkish in the others as in Kocaeli University (Karakas, 2019: p. 207). Implemented fully or partially, there are opponents and proponents of the EMI in Turkey which is a debate between the national and linguistic ideals (Selvi 2014: p. 146). EMI is claimed as decreasing the students' proficiency in content knowledge and their professional development (Sinanoğlu, 2000: p. 78). It is assumed as abuse to human rights, a danger for the development of native culture and society (Sinanoğlu, 2000: p. 99); a factor causing to a decline in the cognitive skills of the learners. Also, it is not possible for every student to access EMI programs due to economic or social conditions. On the other hand, the proponents of EMI implementation in Turkey think that it contributes the competency in the first language (Kırkıcı, 2004: p. 395); it increases the competitive atmosphere in European countries (Selvi, 2011: p. 182).

2.5. CONFUSION IN THE SCOPE

There is a terminological confusion and also misunderstanding of some concepts with EMI. As Macaro et al. (2018: p. 37) state in the current review on EMI that there are lots of educational settings where the teaching-learning process is realized through a language other than the mother tongue which is used by the majority of the population. This process is identified with different names like 'immersion' or 'content-based learning' in North America or 'content and language integrating learning' in Europe. Seeing that, EMI is an omnipresent label which may change depending on the geographical environment and it is a natural result to have an enormous confusion globally. When HE stakeholders claim that they deliver their courses with EMI, there is an assumption that there is a great diversity in the service (Hino, 2017: p. 125) as there is a possibility of the fact that there may not be EMI in the offered course at every program. Thus, it may be more beneficial to focus on and comprehend EMI through discussing it as regards Content and Language Integrated Learning (CLIL), Content-Based Instruction (CBI), English for Specific Purpose (ESP) and English for Academic Purpose (EAP).

2.5.1. Content and Language Integrated Learning vs English Medium Instruction

CLIL is the most argumentative label in regards its similarities with and differences from EMI. It is a contemporary term increased particularly in the last decade that refers to an educational approach which has a dual-focused aim to teach a content subject through an additional language (Coyle et al., 2010: p. 75; Lasagabaster and Sierra, 2010: p. 368; Wannagat: p. 664, 2007). The dual-focused aim is also explained as to enable the students' exposure to both the content and language and to save time as well (Dalton-Puffer and Smit, 2007: p. 18). These suggestions for the definitions of CLIL prove the fact that the target outcome of two concepts is quite distinct as the primary focus of EMI is to convey the content to the students.

The roots of the approach labelled as CLIL come back to the 1990s in Europe. It is mostly defined as an innovative teaching approach that has emerged at primary and secondary schools in Europe with the purpose of fulfilment of teaching and learning a language through an additional language based on the European policy for improvement multilingualism and it encompasses a wide range of education setting from kindergarten to tertiary education level (Dalton-Puffer and Smit, 2007: p. 16). Yet, it is largely implemented in secondary education after students take some basic literacy education in their first language (Dalton-Puffer and Smit, 2013: p. 545; Lasagabaster and Sierra, 2010: p. 369) while EMI is implemented mostly in HE (Macaro et al. 2018: p. 39). It is also argued that language policies emerged by European Commission have come up with the notion of the necessity to have the competence of L2 for the citizens and proposed a shift to English for content subject teaching at secondary education. It has been accepted as a convenient way to establish a multilingual area and expanded language teaching norms as attribution to the European Union. It is also claimed that CLIL is quite similar to the French immersion classrooms in Canada (Dalton-Puffer, 2007: p. 240) so it is possible to see it as 'late immersion' in the research field (Wannagat, 2007: p. 665).

CLIL is accepted as a major shift in approaches of countries for second language teaching (Shohamy, 2012: p. 196). One of the most important aspects of CLIL is that students have naturalistic language learning environment with more exposure to language which differentiates it from traditional second or foreign language teaching (Coleman, 2006: p. 4). This naturalistic environment can be quite supportive for learner autonomy as CLIL improves the learners' studying skills, analytical skills, learning strategies as the programs delivering CLIL are based on the training the students to focus on the content subject more precisely. Beyond these features, the students are engaged with the four basic skills (reading, writing, listening and speaking) for high proficiency and also the curriculum of this approach is designed to keep the balance with the productive and receptive skills of the students in the target language (Brown and Bradford, 2017: p. 330). The layers of CLIL are based on sociocultural and constructivist notions through which the students can provide meaningful input and output for the target language and can engage with the content immensely so it is possible to see an active interaction and

cooperation in the classroom discourse (Coyle et al., 2010: p. 75) which is achieved by immense training of the lecturers at the faculty. The extent to which the content and language are taught in classroom discourse implicitly or casually depends on the lecturers' attitude and experiment as it has a bottom-up experience (Dafouz et al., 2014: p. 228). CLIL also reduces the anxiety of students emerged from learning a new language by taking away their attention to the content in a balanced way and the meantime ensure the students' exposure to comprehensible input which is referred to the Input Theory of Krashen (1985). So CLIL classrooms provide the acquisition of knowledge as there is no place to the explicit instruction (Dalton-Puffer, 2007: p. 182).

Although CLIL and EMI have some common features as they emerged from the late immersion program, their focus points and approaches for teaching in classroom discourse are considerably different, which the current study takes as a guideline. There is also a claim accepting CLIL as a method rather than an approach which aims to assess both the content and language development of the students synchronously which differentiates it from EMI apparently (Brown and Bradford, 2017: p. 330-331). Rather than being an approach for teaching a new language, EMI is mostly put into the process by the university management and it expands the already outlined visions of the university (Macaro et al. 2018: p. 64).

To exemplify the differences between EMI and CLIL, in the study of Wannagat (2007: p. 669), it was aimed to see the effects and the processes of both concepts and to see the language proficiency level by the courses. The study conducted among 66 students through audio and video recordings with a constructive analysis between a German CLIL classroom and a Hong Kong EMI classroom. It is inferred that the students develop their constructive skills in the second language much more and produce longer utterances. Also, it was observed that there were much more student commitment and longer interaction management by the lecturer in EMI classrooms. While there was a planned and consistent approach both to the language and the content in CLIL classroom, there were some cautions for the language like simplifying the text but mostly ignored. As to seeing the case between these concepts from the lecturer perspective in another study (Aguilar, 2017: p. 732)

conducted at a Spanish university where the courses are delivered by EMI, the lecturers were requested to complete a questionnaire in which CLIL and EMI were differentiated and they were asked about their identification and perceptions in terms of both approaches. It was concluded that the lecturers give no importance to CLIL and they do not want a shift to CLIL. They also support to make a clear cut between two concepts as the students would be better aware of the education delivered to them and the lecturers would be aware of less proficient students in terms of language (Aguilar, 2017: p. 732).

As a last word, some of the studies in the field take CLIL as an umbrella term and can use EMI as a synonym of CLIL though this is not the case. According to the arguments of Aguilar (2017: p. 724) and Macaro et al. (2018: p. 46), as a result of various instructional settings in HE, most of the researchers assume their cases as CLIL which is non-comparable or even they do not discuss the features or differences of their research setting in their literature parts. Definition dilemma and ignorance in the instructional setting causes methodological errors from which unsatisfactory results arise (Bonnet, 2012: p. 67). Seeing that, the fact that one of the primary steps of a study in the field is to define sharply the borders, features and differences of the instructional setting is inevitable.

2.5.2. Content-Based Instruction versus English Medium Instruction

One of the confusing cases in the scope is between Content-Based Instruction (CBI) and EMI. First of all, it will be more useful to make an exact definition of CBI for more obvious differentiation between two concepts. CBI is defined as an incidental learning approach in which the students learn an additional language through the content (Brinton et al., 2003, p. 2). The primary aim of this approach which is based on previous knowledge about the content subject of the students is to develop the language skills of the students (Brinton et al.,1989). According to Richards and Rodgers (2001), language learning is beyond the traditional sentence formation, it should comprise all skills as a reflection of the real world and there should be a language learning aim and need for it. Consequently, the predetermined needs of the students increase their motivation (Brinton et al., 1989).

Emerged in the mid-late 1980s, CBI can be used as an umbrella term for the instruction programs conveying the content through a second language (Stoller, 2008: p. 1163). Another well-known perspective of CBI is stated by Stryker and Leaver (1997). They proposed three models of CBI as sheltered content classes, adjunct CBI and the theme-based model of CBI, each of which assigns different tasks to the teacher. These models are emerged for the differentiation of CBI from EFL classes in that CBI classrooms propose the students to learn the language with authentic fragments, unlike traditional EFL classes in which there is no opportunity to have a real example as a tool of communication (Canbay, 2006: p. 13). At this point, there is a need to make a stronger distinction between CBI and EMI.

As for the differences between EMI and CBI, the roots of CBI are combined with Canadian immersion programs like EMI and CLIL in some studies but Canadian immersion programs are mostly associated with CBI rather than EMI and CLIL and the immersion programs are demonstrated as the best examples of CBI (Cenoz, 2015:p. 10) which means that the geographical district of it is North America while EMI is from the non-native environment as a result of being accepted globally (Soruç and Griffiths, 2018: p. 39). The lecturers or the teachers at the CBI programs are mostly native ones who are the school teachers and have a high proficiency both in the additional language and in the language of the majority while the primary requirement for EMI lecturers to be proficient for the content and then have the additional language in need for the education and they can be either native or non-native (Cenoz, 2015: p. 11). EMI can be employed at all levels of education but mostly in tertiary level as stated before. On the other hand, CBI is popular at primary and secondary education level (Soruç and Griffiths, 2018: p. 38).

When it comes to educational and sociologic aims of CBI, it aims to ensure prosperity in multilingualism like CLIL. The programs delivering CBI also aim to equip the students in respect to communicate with the other people from different cultures (Cenoz, 2015: p. 12) which is not comparable with EMI but it has similar focuses with EMI like preparing the students to the international marketing world. Brown and Bradford (2017: p. 330) makes a very strong distinction between two

concepts with the explanation that in CBI the content is mediation for learning an additional language so the assessment is totally based on the language achievement of the students whereas in EMI the language is used as a tool for conveying the content subject and the assessment is on the content knowledge of the students.

2.5.3. English for Specific Purposes versus English Medium Instruction

It is essential to define English for Specific Purposes (ESP) for a higher awareness of EMI. ESP is an approach of which focal point is language proficiency, discourses and genres to meet the current needs of the learners through the specific courses and methods in terms with the discipline chosen (Anthony, 2015: p. 5). Hutchinson and Waters (1987) underline the purposes of the learner for language learning and so the methods and decisions are determined in parallel with those purposes. ESP is expected to be utilized in explicit professional settings and it is based on training in place of education.

The first examples of ESP were emerged in Britain at tertiary level and also for training adults with second language purposes (Briton et al., 1989). As a result of Second World War effects on technology and science, there was a need to use English as an international language for technology and science beyond the traditional use of the language in ELT. There are similarities between ESP and CBI as both were established on the predetermined objectives regarding the students' needs so it is seen as the best example of CBI (Canbay, 2006: p. 13).

While EMI is accentuated in Europe (Doiz et al., 2001: p. 345), it is possible to see that ESP is less recognised or to see some context where two are taken as similar regardless of their focal points (Arnó-Macià and Aguilar, 2018: p. 184). For explaining the common disarray between ESP and EMI, the most underlined feature of ESP is that it has emerged from a needs analysis which is a basis for shaping the framework of the approach and it is goal-directed. In ESP classrooms, there is a collaborative, cognitive and sociocultural process through which the students come together to succeed a task (Mitchell and Myles, 2004: p. 193).

While trying to serve to a similar point, Dudley Evans (1997: p. 155) prefers to put forward some characteristic features of ESP like that ESP is the process of teaching English emphasizing the needs of the learners in particular fields as opposed to traditional language teaching. As for the methodology used in ESP classrooms and composed of various disciplines, the main focus is on the language, discourses, lexis and grammar which makes it completely different from general English courses because ESP students are assumed to have some general proficiency of English. In this context, the main objective of ESP is to enhance the students to possess the competence of communicating in a specific academic or business domain like medicine or engineering so ESP includes appropriate courses and particular methods in a particular discipline like a doctor-patient conversation at a hospital (Dudley Evans, 1997: p. 150). This is why it is divided into subcategories such as English for Business Purposes (EBP) or English for Academic Purposes (EAP).

Additionally, ESP depends on some language acquisition theories so it is accepted as hard to define exactly. However, the framework consisting of three main features of ESP (Dudley-Evans and St. John, 1998: p. 120) makes it more clearly distinguished from EMI: it is aimed at meeting particular needs of the students, it utilizes the techniques and activities in an order it serves, it focuses on the language (grammar, register, lexis). On the other hand, Dearden (2015: p. 7) highlights its aim to differentiate ESP from EMI as like enabling the learners to develop communication skills for a specific context in English.

2.5.4. English for Academic Purposes versus English Medium Instruction

English for Academic Purposes (EAP) is defined by Jordan (1997: p. 35) as an approach through which the students develop their communication skills essential for a formal academic context. The approach is designed under the purpose of teaching academic English which can be transferrable to the students' next academic courses (Peacock and Flowerdew, 2001). Canbay (2006: p. 16) emphasizes its 'tailor-made' feature as in CBI which means it may change without going beyond the needs and purposes of the students as opposed to traditional English language learning. EAP approach brings together different areas of communicative practice in an academic

field such as classroom interaction, students' academic writing and reading, teaching to the students from different levels.

According to Canbay (2006: p. 16), EAP may be taken as one of the extensions of CBI like ESP. However, it is assumed that EAP was born as a direct extension of ESP movement with the intent of becoming an influential factor in English language teaching. The initiation of EAP goes back to the times when the importance of English increased at the academic field and scientific domain in which the students perceived English as indispensable (Björkman, 2011: p. 82; Jordan, 1997: p. 35).

As English is used as a medium of instruction in both EMI and EAP, there are some confusions between two concepts. It is quite possible to see the distinctions between two instructions when the purposes, methodological strategies, the curriculum of both are examined. Airey's (2016: p. 72) categorisation of the instructions describes the difference between EMI and EAP in the best way. This categorisation is based on the continuity of the approaches. In one side of this continuity, there are EAP courses the focal point of which is language learning. The EAP courses aim to enhance the students' skills for reading and speaking essential for an English academic context. On the other side of the continuity, there are EMI courses with the purpose of only content learning and CLIL courses. While EMI involves content in English primarily, there may be some incidental English language learning thanks to exposure with the fact that it has never a purpose for language teaching (Kırkgöz and Dikilitaş, 2018: p. 9, 10).

The efficacy and adequacy of EAP courses have also been a topic under discussion. Before an academic education, deciding the academic skills regarding the students' needs beforehand is important for curriculum and courses in EAP (Jordan, 1997: p. 34). In terms of contribution to this point, Kırkgöz (2009; p. 85, 86) conducted a study at a one-year EAP course preparation for EMI programs in the coming years of a university in Turkey. In the study, it was revealed that the curriculum falls behind the needs of the students for their effectiveness linguistically in the academic field as it is overly skilled-based rather than being discourse-community driven. In another study of Evans and Green (2007: p. 3), the students

have difficulty in mastering in EAP courses as they have limited academic vocabulary knowledge which is a proof for the inadequacies EAP courses. On the other hand, the curriculum of the EMI is based on the requirements of the students' content knowledge development. It is not only adequate to have a full competence linguistically in English for EAP practitioners but also it is an inevitable requirement to have knowledge about the proficiency of their students' in the intended academic subjects (Savas, 2009: p. 396) as having competence in English language teaching does not guarantee the success in teaching EAP. Moreover, the practitioners should build new knowledge over the previous one of the students about the content subject.

2.6. PREVIOUS STUDIES IN THE FIELD

2.6.1. Previous Studies On English Medium Instruction In International Context

In the international context, it is possible to find studies about the attitudes, perceptions and beliefs of lecturers about EMI programs. Dearden and Macaro (2016: p. 464, 465) investigated the lecturers' attitudes toward EMI by comparing three countries: Austria, Italy and Poland. Depending on the data collected from 25 lecturers through a semi-structured interview, there was a diversity in the views according to the country due to the acceptance and introducing way of EMI, lack of linguistic proficiency, general support for programs. There was also diversity with the concerns of the lecturers about the national language versus English. But the lecturers had common views on the benefits of EMI on students and the institutes and they supported globalisation and internationalisation. In Dearden's (2015: p. 8) globally conducted study, it was found that there was no opposition against EMI but there were some 'equivocal' voices or objections with concerns about the emergence of social distance which meant that some students had no access to the programs delivered by EMI. There were other studies on the perceptions and beliefs of lecturers specifically about the effects of EMI on the students' English proficiency level. Belhiah and Elhami (2015: p. 8, 10) conducted a study among 100 lecturers from the United Arab Emirates and most of them had a positive feeling about EMI as

they thought it enhanced English proficiency level of the students. Contrarily, Vinke (1995: p. 75) found that Dutch lecturers had negative views about EMI and the size of this negative feelings changed depending on the language skills, implementation opportunities and the effect of English. Linguistic limitations caused workload and had a bad side effect on the students' learning according to the lecturers. The study also concluded that a shift from mother tongue to a foreign language in instruction restricted the use of effective teaching behaviours. However, there are some other studies, conducted in Turkey, which concluded that lecturers kept their silence about the effects of EMI on students (Kiliçkaya, 2006: p. 6).

Some other studies investigated the students' beliefs, perceptions and attitudes toward EMI. Yeh (2014: p. 305) conducted a large-scale study among 476 students from 25 EMI courses in Taiwan to learn about their general attitudes and their content learning experiences. The study showed that students had a quite positive attitude toward EMI. The most attracting factor for motivation to choose EMI programs was the popular professional lecturers in the related program rather than English improvement. The students stated that EMI courses were satisfactory and they defined their failures in the courses as emerging from their insufficient English proficiency. Another example is the study of Al-Masheikhi et al. (2014: p. 99). The study investigated the attitudes of science students toward EMI in Oman through a questionnaire and open-ended questions. The study indicated that while there were several students support EMI as they accepted it as technology and science language, more than half of the students stated their preference for Arabic as medium of instruction in Science College with the concern of expressing ideas in the classroom, feeling bored, fear of mistake. Chapple (2015: p. 4) explored the students' purposes and motivations for choosing EMI programs at two-tier universities in Japan. It was found that the primary aim of the students was to develop their English language proficiency, then making foreign friends and experience authentic English come. Yet, the students stated their difficulties with the courses while the international students in the study claimed otherwise.

Some studies preferred to focus on the comparison between the beliefs of lecturers and students. Li and Wu (2019: p. 21) found that the lecturers and the

students had positive views about EMI, the lecturers observed progress in the English language proficiency of the students but there were difficulties related with the heterogeneous language level distribution of the students and related with spending a high amount of time for preparation to the class by lecturers. In another study (Tatzl, 2011: p. 257), attitudes, experiences and challenges that the lecturers and the students encountered during EMI courses were investigated. According to the data collected from the lecturers and the students at master degree programs of Management, Electronic Engineering and Security Engineering in Austria, both sides supported EMI programs as it answered the global recruitment power. Both sides also thought that EMI improved English language proficiency of the students.

O'Dowd (2018: p. 561) operated a study to gain an overview of how the lecturers were trained in Europe and to identify the needs and the standards which were expected from the lecturers for teaching by EMI. The study conducted among the representatives of 79 European universities from various countries. The implications derived from the study told that the training for teaching staff was insufficient and what kind of training approach should have been applied was not clear. Also, the required language level varying from B2 to C2 was arguable in terms of sufficiency. It was also revealed that universities did not have a formal accreditation process in the recruitment of the lecturers. The suggestion for the training of the lecturers was supported by some studies. For example, in the study of Klaassen (2003: p. 135), most of the participant students found their lecturers' English language skills as insufficient for EMI programs. In another study (Evans and Morrison, 2011), the students reported their difficulties to comprehend the courses due to the accent and presentation style of the lecturers. Costa and Coleman (2013: p. 16) fulfilled a longitudinal study which was composed of several questionnaires and numerous case studies all across Italy. It was revealed that 77 % of the EMI lecturers in the country took no training before implementation. Only 15 % of them stated that they took language courses and only 8% of them were provided methodological training.

One of the main questions of EMI in HE is whether it has any effect on the development of students' English language proficiency. In the doctoral dissertation

of Rogier (2012: p. 122), the effects of EMI process on the students were explored and the perceptions of both the students and the lecturers were investigated. In this longitudinal study, the proficiency level of the students was tested at the end of four education year by the International English Language Testing System (IELTS) and the findings demonstrated that the students developed their four skills but the most improved one was speaking than reading, writing, listening respectively. In terms of the perceptions of the students, lecturers and the faculty members, there were some differences. The students were aware of the beneficial effects of EMI and they rated their English proficiency level as good to excellent. However, the lecturers thought that the students were under the expected proficiency level which was a problem for the run of the courses. Yet both sides believed that EMI was a process with long-term benefits. On the other hand, in Chinese example, Hu and Lei (2014: p. 551) found no evidence whether undergraduate students at the programs holding EMI developed their English proficiency much more than the students at the programs with Chinese medium instruction. Byun et al. (2010: p. 436) conducted their study at a Korean university and the results were drawn from the students' views and group interviews. In this study, it was revealed that EMI policy at the university had mostly positive outcomes such as improving students' language proficiency or overall sufficient outcomes. Yet, there was a requirement for a more flexible approach in terms of implementation of EMI in the classroom, career plans and the features of some academic disciplines.

The other focused question regarding EMI is its effect on content learning. To answer this question, Joe and Lee (2013: p. 205) analysed the relationship between the satisfaction and comprehension of Korean medical students and English language proficiency at the EMI program. It was reported through content test scores that the language proficiency or the instruction language did not affect the comprehension level in terms of content subject. Nevertheless, the students stated that they would like content language to be delivered through the Korean language. In a similar study (Dafouz et al., 2014: p. 230), the effects of EMI and the nature of the courses on the students' academic performance were compared with the equivalent performance in Spanish. The final grades of EMI and non-EMI students from History, Accounting and Finance programs were similar. Even, EMI students had slightly higher grades

than non-EMI students. When it comes to the effects of the nature of the courses, History had slightly higher test scores than Accounting and Finance. Dafouz and Camacho-Miñano (2016: p. 65) conducted a study with the same purposes in Financial Accounting Program with EMI by comparing with its Spanish medium instruction counterpart. Again, there was no meaningful difference between the scores of two departments and EMI was observed as not to lower the final academic points. Hellekjaer's (2010: p. 233) study examined the level of comprehension of the students in EMI courses comparing with non-language courses in Norwegian institutions. Data analysis derived from 391 participants from three universities demonstrated that the scores of the students were significant. The students had comprehension difficulties resulted from unfamiliar vocabulary, taking notes while listening in EMI courses. The study concluded that serious precautions should be taken for language difficulties and language proficiency development of both the students and the lecturers.

With the rapid increase and development of EMI in the world, some studies were conducted for investigation about the main actors of the process: policymakers and institute managements. Cho (2012: p. 135) investigated the perceptions about the ways to increase the advantages of policy while decreasing its disadvantages and also to learn about the perceptions about the implementation of EMI in Korea. The data were collected from 41 faculty members, a total of 842 graduate and undergraduate students by questionnaires and in-depth data were obtained from professors and students by structured interviews. The results showed that EMI policy implementation in EFL context was inefficient and inappropriate in teaching the content subject due to the poor English language proficiency of the lecturers and the students. Also, the lecturers and the students reported their opposition to the policy as they were enforced to implement the one-sided taken decision. Khan (2013: p. 35) investigated the effects and policy of EMI on the perceptions of first-year master studying students in Pakistan. The study illustrated that there was an inconsistency in the implementation of EMI. As the framework of it in the policy was not clear, the lecturers sometimes shifted to the national language in the courses. The study stated that the local needs were ignored in language policy. The students had anxieties as they had a lack of skills in English which was a compulsory language in master

courses in Pakistan. Ali (2013: p. 79, 80) investigated the implementation of EMI at three levels: macro (national), meso (university), micro (stakeholders). For data collection about the development of language policy, policy-related documents were analysed comprehensively and it was found that there was a changing paradigm in the language policy of Malaysia. Policymakers paid required attention to EMI to strengthen the mastery of the students in the country. However, it was revealed that there was a misunderstanding between policymakers and lecturers, meaning that policymakers expected the students to develop their English language skills.

Wachter and Maiworm (2002: p. 122) conducted a study through stakeholders of HE among 1,600 HE institutions in 19 European countries and found that European countries needed more EMI programs as the governments in Europe were observed as lack of active policy for education taught in English. The acceptance of EMI programs in HE needed a 'grass-root creation' which means that there should be institution-wide policy establishment. Finally, as different from others, the study revealed that the institutions should reconstruct their targets about the students as there was a surprise with the academic staff after enrolments. The study revealed that there were some language proficiency problems but not much of a critical level. In the following study of Wachter and Maiworm (2007: p. 67) across 27 countries in Europe with 2218 HE institutions, they found that the institutions offered EMI programs with the motivation to attract international students after an administrative decision. Also, some language-related problems were revealed with the reality of implementation in the classroom meaning that the teachers could not express themselves accurately and the students did not understand their lecturers properly. In the last study of Wachter and Maiworm (2014: p. 98) across Europe which was carried out through 4 surveys and among the students and the lecturers this time, it was explored that domestic students were in more favour of EMI programs than international students. The language proficiency of the lecturers was found good or very good by most of the programme directors while the language proficiency of both domestic and international students was found inadequate. It was surprising that most of the institutional coordinators and programme directors offered the training of the foreign students for domestic language as a resolution.

The current studies in EMI mostly used observation techniques to see the implementation of EMI in the classrooms based on classroom discourse. For example, Tsou and Kao (2019: p. 7) observed four Engineering courses through audio recordings which were supported with interviews and surveys. It was found that students had positive views about EMI programs. Yet, there was little interaction in the observed classrooms. The lecturers associated this situation with the knowledge-based nature of the courses. Chou (2017: p. 131) examined authentic materials used in Law School with EMI by comparing three cases. While in two of the cases the instructors used coursebooks one of which was written by a local writer and the other one of which was written by a native English writer, in the third case the instructor would like the students to search for the content. The third lecturer was much more demanding than the other two about the assignments and also the students were required to ask questions through email about the activity that was conducted by one of the students so there was an immense interaction in the classroom. In the second case, only talkative students joined to the interaction with the teacher. Björkman (2008: p. 110) investigated the morphosyntactic forms of spoken English with 70 hours of recording in an EMI classroom. In the classroom, non-standard English use was mostly observed especially in question formulation. Also, it has been proved that non-verbal aids can be used as a communication tool like slides in the observed classes. Tarnopolsky and Goodman (2014: p. 394) explored code-switching behaviours of the lecturers at a private university in eastern Ukraine. The data were collected through ethnographic field notes, audio and video recordings and interviews over nine months. Comparing similar practices with EFL courses in the same university, the researchers found that there were common reasons for using L1 in both language-instructed courses, namely checking the students' comprehension, explaining the meaning of unknown vocabulary. Different from EFL teachers, EMI teachers needed to slip to L1 for subject-specific vocabulary and they did not switch to L1 for grammatical explanations as it was not in their plans.

2.6.2. Previous Studies On English Medium Instruction In Turkey

Some early studies in Turkey which focused on the attitudes of the lecturers towards EMI (Demircan 1995: p. 19) revealed that the lecturers did not support the usage of EMI in their courses due to some reasons like lack of proficiency in English, the difficulty in focusing on the content and loss of time. To exemplify this situation exactly, Kiliçkaya (2006: p. 2) conducted his study among 100 instructors and explored that Turkish EMI lecturers did not acclaim education through EMI as they thought Turkish instruction was more useful for students to comprehend the content of the subject matter. In another study (Başıbek et al., 2014: p. 1824), perceptions of lecturers from two universities with partial EMI classes were investigated in Turkey. The study put forth that lecturers supported the adoption of EMI by HE and they had no anxiety about the sources as they were supplied in English. Finally, the lecturers thought that the language proficiency of the students was not adequate to learn the content.

In examples of the studies which focused on the students' perceptions, Kırkgöz (2005: p. 116) investigated the students' motivational factors to choose EMI program and the challenges encountered during classes. It was found that students had instrumental motivation for EMI in the long run and EMI had beneficial and progressive effects on students' language skills and proficiency according to the students' views but they thought that it was impractical to administer the content with another language as it was hard to comprehend precisely. In a recent study (Macaro and Akincioglu, 2018: p. 260-265), the perceptions of the students about EMI improvement at their schools were investigated focusing on some variables like level, gender and university type. The study in which 989 students participated from 18 universities concluded that the primary motivation of Turkish HE students for choosing EMI programs was to improve their English language proficiency for their field. The students from foundation universities were more satisfied with their EMI program. Lastly, female students were more positive in the idea that EMI would be beneficial for English language improvement. In another study with the same purpose (Ozer and Bayram, 2019: p. 63, 66), the data collected by interviews with the students demonstrated that students had positive perceptions due to the outcomes of EMI like better job opportunity, the comprehension of terminology-specific content. As well as positive attitudes, the students had criticism on EMI because of

time consumption, a decrease in self-confidence and comprehension. Kavanoz and Yüksel (2010: p. 822) investigated pre-service EFL students' opinions about EMI implementation in Turkey. The 2nd, 3rd and 4th-grade students' answers showed that EMI was an obstacle to understand the content subject of the courses which resulted in getting poor scientific knowledge. Students reported that they spent most of their times to develop their English language proficiency to comprehend the subjects. On the other hand, they accepted EMI as beneficial in terms of its prestigious label which it brought to the graduate students. Turhan and Kirkgöz (2018: p. 267) implemented a study to investigate the motivation of engineering students toward EMI in Turkey. The data collected by questionnaires and interviews showed that the students were mostly motivated with both instrumental and integrative reasons toward EMI. Yet, interviews mostly refered to instrumental reasons which means that the students and the lecturers in the study had motivation toward EMI with pragmatic and extrinsic reasons. There was a contrast in the fact that the students thought EMI as beneficial for their country's globalization but not as a facilitator for their work. It was revealed with the interviews that while the students thought EMI as contributing their language development and cognitive abilities, the lecturers reported that they found their students' language skills unsatisfactory.

To exemplify the studies that aimed to investigate the effect of EMI on students, Sert (2008: p. 156) explored the outcomes of using EMI in classes in terms of students' language skills and content knowledge by comparing EMI both with courses delivered through English aided classes in which the teaching was mediated through Turkish but the exams were implemented by English and with the courses fulfilled through fully Turkish medium instruction. In this study which was conducted through questionnaires and interviews among both students and lecturers, it was concluded that EMI was more effective one than the other two instructions in developing the students' English language proficiency but it was found unsuccessful to supply content to students adequately. Kirkgöz (2014: p. 455) looked for the effect of EMI from the students' perceptions by comparing TMI (Turkish Medium Instruction) with EMI. The data were collected by a survey, interviews and exam papers of undergraduate engineering students. It was reported in the study that EMI students found it beneficial for their language development, its easy access to the

primary sources, following up the cases in their fields while they had some difficulties like superficial learning of the content for a short time and as they forgot the knowledge that they memorized from the coursebooks for their exams. TMI students reported that they learnt every detail of the content and internalised the content for a long time but they had some concerns about getting a higher job due to their lack of proficiency in English. There is another study which investigated the effectiveness of EMI from the perspective of students and lecturers in terms of their views about language policy and attitudes towards EMI (Collins, 2010: p. 102). In the study, the data were collected from a quite large population (1011 students and 117 lecturers) at 9 different faculties in which there were both Turkish and foreign lecturers. The results of the study revealed that the students found their instructors' language proficiency effective but content knowledge neutral. While most of the instructors supported English medium instruction in education, almost half of the students were against it as they had a perceived deficiency in language. As in previous studies, these students had also problems to create a connection between the context in the foreign coursebooks and the real one. Zaif et al. (2017: p. 78) looked for the effect of EMI on the achievement of the students by comparing the grades of the students taken from EMI and native language. The study found that there was no difference in terms of mid-term, final and overall grades of the students from both programs which decreased the possibility of the attributing the failure in EMI programs to language proficiency.

There are a few studies that have looked for the difficulties of EMI in the Turkish context. In one of the examples, Gokmenoglu and Gelmez-Burakgazi (2013: p. 29) looked for the difficulties and challenges which the lecturers encountered during the development of classroom management course. Course syllabi and semi-structured in-depth interviews were held with four instructors of Management Classroom courses from the Department of Educational Sciences. At the end of the study, the researchers revealed that the content of the courses required more practical activities to enhance the students to connect the theoretical and real environment. Finally, the most charming result of the study was that there was a need for the preparation of the coursebooks which include situations and cases more similar to the Turkish context. This was a challenge that increased the alienation of the students to

the content. In a study examined in International Relations and Psychology classes at a Turkish university (Soruç and Griffiths, 2018: p. 41), the challenges that students encountered in the learning process through EMI were investigated. There were 39 participant students in the study none of which were native speakers of English. It was derived from the study that the students had difficulty to understand the English spoken in EMI classroom as a consequence of their low-level English. They had also difficulties related to the teacher and the class like feeling bored, following the course and interacting with foreign lecturers in addition to the difficulties about vocabulary. It was also revealed that the students developed some cognitive strategies to be able to cope with these difficulties like asking questions, using previous experiences or visualizing and to be able to cope with the difficulties about vocabulary by guessing from the context or by preferring to use a dictionary.

It is also possible to find studies based on the implementation of EMI in the classrooms. Karakas (2019: p. 209-212) focused on English-Turkish mixed-up language use with some excerpts from blogs and websites in his critical review. He revealed some facts for partial use of English in the classrooms. According to him, the stakeholders may not want to breach totally to English as it is almost impossible to find the equivalence of some scientific terms. A mixture of English-Turkish use may be seen as show-off or prestigious. Karakas (2016: p. 246-254) studied the use of mother tongue in EMI classes by interviewing with the instructors. There were 7 instructors from quite various disciplines at major EMI universities in Turkey: Bosphorus, METU and Bilkent Universities. The researcher created two categories at the end of the study: opposing and supporting voices. The first group criticized the use of Turkish with the reasons such as digressing the policies determined by the institute, being disadvantageous for the enrolment of students in certain disciplines, high quality course books written in English, attendance of international students in the classroom. The second group supported the use of Turkish in EMI classrooms for the reasons of the necessity to comprehend the content clearly at some points, deficiency of the students in the written exam, Turkish background of the majority of the staff and the students and fairness issue, advantage of linking the content with Turkish culture and context, and creating a familiarity. Taquini et al. (2017: p. 45) conducted a study in Turkey to analyse the EMI courses distribution at state

universities and the use of English language in the courses by comparing with Brazilian universities. It was concluded that Turkish state universities were more familiarized with EMI than Brazilian universities. The mobility to 'out' of the staff was much more than the mobility to 'in'. Karakas (2018: p. 788) investigated the language policy and practice of three EMI universities in Turkey. The study revealed that the institutions gave place to EMI in their policies but they did not define the framework of the language. There was confusion about what kind of English language should be used. When the documents and websites of the universities were inspected, it was found that they would like standard English as a competence but they did not have any study on whether this was appropriate for their academic norms. The study has concluded that EMI universities need a drastic and immediate revision for their language policy.

As most of the HE institutes have started to give place to EMI intensely, English preparation programs at universities which is a transition phase from high school to HE programs including EMI and where students are exposed to English deeply have become the focus of some EMI studies. Rather, there are some evaluation and needs analysis studies which investigated the adequacy and effectiveness of the relation between PYP and EMI on the implementation of EMI in the classrooms (Karataş and Fer, 2009: p. 47; Kırkgöz, 2009: p. 81). The common result of these studies is the insufficiency of English classes in PYP programs for the required proficiency in EMI classes in coming years. In the need analysis study of Inan et al. (2012: p. 3166-3170), it was searched for the opinions of EMI lecturers about the required skills from the students at two major universities in Turkey. The main focus was to observe the shift from the preparation class to the main program with EMI. It was found that the most important and required skills for the lecturers were receptive skills, reading with the highest score. Because the lecturers expected from the students to comprehend the content thoroughly. After this study, the syllabi of the PYP classes at one of the universities in the study has been changed regarding the needs. Akyel and Ozek (2010: p. 975) concluded the same result from the lecturers' perspective though students emphasised the importance of productive skills. Both sides thought that preparation schools should give importance to

speaking activities. Also, this study showed that there was a big difference between the observation of the process from both perspectives (lecturers and students) which gave the clues to us that classroom observation is a must in this field to obtain a healthy data about the process. Macaro et al. (2016: p. 56, 69) conducted a study which focused on the effect of collaboration with pre and post interventions designed as a part of some lesson planning sessions between preparatory and EMI lecturers. A significant change was observed in the beliefs and practices of some of EMI lecturers who thought that there was no problem related to language at the initiation but later discovered the importance of it. After the intervention, EMI lecturers started to focus on whether the students understood the content clearly or not and they decided to go further in the point where students hung out. It was also explored that EMI lecturers believed the inadequacy of preparatory schools to the extent which the students should have the desired proficiency level to obtain the contentment. Coşkun (2013: p. 7) revealed that PYP curriculum needs to be developed to make students more capable in EMI classes. There are differences in the views about the essential skills to be evolved between the students and the instructors. However, both sides think that instructional material should be developed.

The study of Soruç et al. (2018: p. 277) explored the Turkish students' listening comprehension strategies in EMI context at three different universities. The data proved that the students used almost all of 32 strategies put forward in the questionnaire. The most used strategies by the students were being alerted during the classes, preferring to sit in the front row, regular attendance to the class, participation in the activities. It was also proved in the study that female students used much more strategies than male students. Also, there were differences between partial and full EMI in terms of education levels.

2.7. TEACHER QUESTIONING AND STUDENT TALK

2.7.1. Teacher Questioning

The sociocultural approach of Vygotsky (1981) underlines the participation in activities to keep learning throughout the life and also the importance of adaptation

to new situations to meet the new demands which enable further development in learning. From a Vygotskian perspective, learning is a social process and the role of discourse to enhance the social establishment of knowledge cannot be separated from this process (van Lier, 1996: p. 5; Vygotsky, 1989). The patterns of talk in the classroom are important for the development of a student's way of learning and thinking. So, the involvement of the student in social classroom activities to motivate the thinking process and for improvement of conceptual knowledge is significant in terms of interactionist perspective (Dafouz and Sánchez-García, 2013: p. 131). On the other hand, knowledge can be established through the interaction of voices in the classroom from a dialogic perspective (Nystrand and Gamoran, 1997: p. 40). So, interaction plays a crucial role as learning does not occur merely by the individual cognitive process but also it is a product of social interaction.

The exchange of question-answer in a classroom creates interaction and enhances the flow of interaction in the classroom. Walsh (2006: p. 102) explains 14 distinguished interactional features and four of them are questions remarkably meaning that questions have special roles when it comes to interaction between teacher and student in the classroom setting. As a key sign of a classroom learning expectation, teacher questions are accepted as the most powerful and the most frequently used 'talk move' (Boyd, 2015: p. 373). They can give clues about the features of the classroom discourse and during classroom analysis and it is possible to have an idea about the whole discussion through efficient questions produced in a class period (Yuksel, 2007: p. 32). Questions serve with various functions which are listed in different formats by different names. According to Boyd (2015: p. 373-375), questions are useful tools to manage and control classroom talk, to start and to stop student talk, for backing to student contributions to classroom talk. McCormick and Donato (2000: p. 183) focus on the mediational power and the support to learning of the questions in the classroom setting and they categorize the purposes of teachers' using questions like 1) to check comprehension of students, 2) to enhance the comprehension of complex concepts, 3) to employ instructional interaction.

Particular question types initiate and motivate particular student talks in a classroom setting. For that reason, question types are classified by their functions

traditionally. For example, *authentic (genuine or open) questions* are the assistive tools for teacher inquiry and bring more than one answer (Boyd, 2015: p. 374). They include a request for which the asker does not have a pre-specified answer and they provide students to express their ideas without restriction (Nystrand and Gamoran, 1997: p. 39). These questions are associated with wider student talk including what a student thinks, knows and feels and also, they are taken up with high-order comprehension reading skills (Nystrand, 2006: p. 392). *Authentic question* is not just a representative of the enthusiasm to learn what some other people think but also it reveals a teacher's curiosity and value to his/her students' ideas and knowledge in a dialogic scope (Yuksel, 2007: p. 32). *Display question* which is the most frequently used name for this kind (Long and Sato, 1983: p. 270) is asked to check students' learning with expected answers (Boyd, 2015: p. 373) and is also called test question (Nystrand and Gamoran, 1997: p. 37) that is defined as having only one correct answer. Nystrand and Gamoran (1997: p. 36) explained the functions of display question in detail that display question serves to observe how much students understand or not understand, checking an assigned activity and augments key points. Display question is usually vindicated as it is assumed to invite short exchanges and to require effortless thinking, like a yes-no answer, mostly matching with the teacher's predetermined expectation (Boyd, 2015: p. 374). This question type is combined with the traditional classroom discourse patterns: IRF or IRE meaning teacher initiation, student response and teacher evaluation or follow up (Nystrand et al., 1997; Wells, 1993: p. 15). It is also associated with the convergent questioning nature (Burbules, 1993: p. 135). Sometimes an authentic question may not be enough and needs the support of a closed question for more student talk and especially the closed question coming as a contingent continuity of a precedent talk can bear new understanding in the classroom setting (Boyd and Rubin, 2006: p. 141). If a teacher searches for dialogic teaching, he/she generally uses the power of IRF/IRE with the initiation of the inquiry, then the contingent power of a third follow up and consequently an accompanying 'sociohistoric' pattern of questioning (Boyd, 2015: p. 395) which is observed both in first language classroom settings (Nystrand et al., 1997; Wells, 1993: p. 10) and second language classrooms (Boyd and Rubin, 2006: p. 145; Haneda and Wells, 2008: p. 114). One of the question types mostly used in a classroom setting is *clarification request*. It is used to indicate to students

that either their talk is not understood or is not correct in a way and it brings about redefinition or repetition of preceding contribution (Boyd, 2015: p. 382; Lyster and Ranta, 1997: p. 45). There are studies which proved the benefit of clarification requests in reducing learners' errors during communicative tasks about simple past tense in second language classroom context (Ellis, 2003). The last question type included in this study is *procedural question.* It is used for situations related to directions and behaviours (Boyd, 2015: p. 382). Questions that occur in discussion in exam weeks, in some of the assignment talks, about a psychical feature of the classroom requiring intervention can be categorized under this type.

Teacher talk enhances student involvement in exploring new knowledge within a continuous contextual frame and a teacher characterizes this talk with contingent, convergent and divergent questioning (Boyd, 2015: p. 382). *Contingent question* is produced by a teacher or student as a contribution in three preceding utterances. Contingent questions are associated with the notion of *uptake* (Collins, 1982: p. 143; Nystrand et al., 1997) assuming both contributing previous utterances and forwarding and also manage their effect on the future discourse. It is proven with contingent questions that a teacher can promote student talk not only through authentic questions but also by display questions (Kachur and Prendergast, 1997). Also, teachers and students are not only motivated to open up new dialogic episodes to demonstrate their thoughts in the classroom but also they can contribute to previous ones and extend the available topical episodes. Furthermore, teacher talk includes convergent and divergent nature of questioning to enhance student involvement in the experiment of encountering with new knowledge. *Convergent questions* supply a continuum for an aspect of what is being discussed while *divergent questions* open a new floor to an aspect of what is being discussed (Boyd, 2015: p. 383). The difference between convergent and divergent questions is simply that the first type usually brings yes-no answer while the second type encourages students to produce longer and more complex answers (Richards and Lockhart, 1994) but that does not mean divergent questions are limitless and convergent questions hinders the creative and generative thinking skills (Burbules, 1993: p. 130). These question patterns indicate the extent to which a teacher gives value to student talk and students are aware of these patterns. In other words, students recognize the

teachers who use authentic or display questions with follow-ups, who deepen the inquiry, who support student talk or challenge the student response and who do not (Boyd, 2015: p. 380). Convergent and divergent nature of the questions is not a frequently studied issue in the field but searching for this pattern can enhance a useful clue about the role of questioning in deciding the scope of talk. They also know the teachers who are enthusiastic for further investigation to student's turn of talk with closed displayed questions in the role of contingency. So, they may perceive closed-display questions as assistive rather than dismissive to their responses, which means that their responses are shaped in a reaction to the teacher questioning pattern and they give value according to the norms of classroom discourse and function of the question (Bakhtin, 1981; Boyd, 2015: p 396).

As Boyd (2015: p. 380) stated if a teacher creates an interaction that draws the borders of student talk with prespecified expected outcomes, it is less likely to the emergence of critical responses, development of academic and social competence. In the same way, a teacher can shed light on the way of students to inquiry in depth. Also, there are various times that students explore further on a topic and struggle to internalize it, on the other hand, that they easily reach the point or pass through with a surface meaning. In both cases, teacher questions are sensitive assistants of teachers as they invite, create and manage dialogic and exploratory talk of a student which enables students to represent their ideas, evaluations and joint decisions and which is essential for not only using language but also crucial for 'educated communities' of discourse like science, law, the arts and social sciences (Mercer and Littleton, 2007, p. 38, 57). Consequently, we can better understand the function of teacher questioning by focusing on student learning.

2.7.2. Student Talk and Student Learning

In EMI setting, among lots of problems and various concerns, the most important issue is student understanding the content which is delivered in another language. In recent years, some studies have focused on the features in academic discourse that improves students' understanding of the content. According to Morell (2007: p. 222), one of the ways to resolve this issue is the transition of classroom

nature from monologic to dialogic construct through which interaction between teacher and student occurs. Another way is to allow the students to interrupt and to ask questions to the teacher in the classroom. So, interaction is a significant element in EMI classroom and if it is not given place, both the understanding the content and language improvement can be restricted. To encourage the students to participate in the interaction in the classroom, teachers can use questions as an instrument.

Though student talk can be a feature of communicative competence, a high-level of thinking skill, comprehension and engagement, it does not occur on its own. Student talk is also a sign of gradual attaintment of knowledge, experience, self-confidence and it necessitates a supportive context for wider student talk, engaging material, attentive speakers, support for student dialogue (Boyd and Galda, 2011: p. 85). For the occurrence of interaction in the classroom, both the lecturer and the student should listen to each other and should contribute to each others' utterances. Yet, this is not enough for promoting elaborated student talk: *student critical turn (SCT).* SCTs are extended student talks that are coherent structurally and are the proof of substantive engagement of the students. In the classrooms where contingent teacher behaviours occur, student talk functions in a wider conversational role than simple recitation. Also, students gain more developed discourse competence with the stated behaviours of the teacher (Boyd and Rubin, 2014: p. 495).

In classroom settings, there should be exploratory students talks as students need to experience how they can organise their ideas in different patterns, what others contribute to their utterances, try out their ideas, how they seem or sound (Barnes, 2008: p. 10) as well there is a need for immediate and incomplete exchanges. This talk gives feedback to the student about his/her learning outcomes as students negotiate interactions in the classroom and comprehension of the content (Swain, 1995: p. 125). Either elaborated or hesitant, student talk gives shape to teacher planning, teacher talk, and teacher questioning and also, teacher grasp the opportunity to answer both during talk time in the classroom and on the agenda. If teachers expect to see organizational dialogical practices in a classroom setting, then they should allow continuous student talk to guide their questioning and inquiry and

even they should use contingent nature of the questions in a more answerable way (Michaels et al., 2009: p. 129).

The importance of the questions as promoting interaction and student talk is an issue investigated in second language learning classrooms over several decades (Banbrook and Skehan; 1989: p. 141; among many others). The interest in this issue has started to increase in the fields of CLIL and EMI settings from primary education to HE. It will be beneficial to look comprehensively at these rare studies in the field to have an opinion about the exact issue.

2.8. PREVIOUS STUDIES ABOUT TEACHER QUESTIONING AND STUDENT TALK IN EMI CLASSROOMS

2.8.1. Previous Studies about Teacher Questioning In EMI Classrooms

Dafouz and Sánchez-García (2013: p. 135, 137) investigated the role of EMI in three different lectures. The main focus of the study was on the teacher discourse and more specifically teacher questions. The 240-minute data was collected by video recording. The researchers preferred to focus on the most frequently used questions by the lecturers: confirmation checks, self-answered questions, display questions and referential questions respectively. A total of 13.9 thousand questions were counted per 1000 words. It was discussed in the study that these confirmation checks were mostly used not because of obtaining verification from students but because of a transition marker to the other topic. More similarities than differences were observed between three disciplines, namely Business, Psychics and Engineering. In other words, the study revealed that different disciplinary courses were more similar in the use of question types which means that the differentiation of the disciplines did not affect the type of questions while there was a clear difference in the effect of disciplines on the type of teacher talk in the study of Lo (2014: p. 141) which was applied in a content-based instruction setting. The confirmation checks were observed as being used more frequently in social sciences lectures than psychical

sciences. There were unanswered questions in the study about whether teacher questions created a teacher-student interaction in the study or not.

Sánchez-García (2018: p. 118) investigated the teacher questions and their roles to trigger interaction among student participants by comparison of L1 and EMI settings. The participants of the study were two lecturers one of whom taught Business Administration and the other one of whom taught Financial Accounting. Two lecturers delivered the same content both in L1 and EMI. The data consisted of a total number of 152,530 words from 16 videotaped lectures. Three questions were investigated because of their interactional nature: confirmation check, display and referential questions. As a result, the study claimed that university lectures were rich with confirmation checks. This question type was more frequently used in L1 lecture of one lecturer who used display questions more frequently than referential questions. The other lecturer used less frequently confirmation checks and more often referential questions. Interaction in the lectures was not so much observed which was attributed to the prevention of the teacher or students due to not knowing the answer. Also, there was an abundance of display questions in L1 instruction and referential questions in L2 instruction. The study needs a more comprehensive look not only for the function of the questions but also for the extending natures of them.

Hu and Li (2017, p: 187-199) focused on teachers' questions and students' responses in EMI classrooms in China. There were 10 lecturer participants, 10 courses delivered in EMI, in Chinese and in a mixture of Chinese-English. The researchers used a revised version of Bloom's taxonomy based on six cognitive processes. They assigned scores between 1-6 to assess the cognitive complexity of the teacher questions and student responses. It was found that the most used question type was Level 2 meaning engaging students in understanding instructions. The most used student responses were Level 0 meaning keeping silence. This silence was observed more often in EMI courses than Chinese courses. The study concluded that the questions did not require high-order thinking abilities in the study. Because the most frequent used question type was display question. Also, the study has implied that EMI restricts the cognitive complexity of both teacher questions and student answers.

Pun and Macaro (2018: p. 59, 63) studied for the effects of L1 and L2 use on question types and interaction patterns in Science courses of early and late EMI classrooms in Hong Kong. The researchers observed 33 lessons composed of 40 minutes by video recording. Two types of questions were used: high-order which requires a student to make evaluation, analysis and synthesis, and low-order which triggers students to remember something told before. It can resemble convergent and divergent questions in this study. More high-order question use was observed in late EMI classrooms with more use of L1. In these classrooms, students could create interaction and establish a bridge between previous learning and the new construct. The study could not answer the question of why teachers in late EMI classrooms used low-order questions though it was rare. With the same purposes, Maíz Arévalo (2017: p. 6) sought for whether the frequency and type of questions differed by the language of instruction, namely Spanish or English through the observation of the same lecturer's courses. The inspected question types were rhetorical, comprehension check, display, referential, clarification check questions. Comprehension check, display questions and clarification checks were more frequently used in EMI courses. Display questions were much more than the referential questions in EMI courses.

Björkman (2017: p. 79, 83, 85) investigated the role of pragmatic strategies in classroom discourse through almost 43-hour video recording. As one of the pragmatic strategies, content-oriented questions were explored. In more detail, genuine and rhetorical questions were inspected. It was observed that the questions composed of the minority of all observed lectures. The students asked only 13 questions during 43-hour lectures. In two of the lectures, there were mostly rhetorical questions while there was an equal number of both genuine and rhetorical questions in another two lectures. It was verified that questions were 15 times more frequent in language lectures than applied sciences.

Hu and Duan (2019: p. 303) examined the teacher questions and their effects on students' answers in 20 different courses in a Chinese EMI university. The focused questions types were comprehension checking questions, logistic and

rhetorical questions. The study found that all of the teacher questions and student answers were linguistically and cognitively simple. There was overwhelmingly low order teacher questions and student talk as the lecturers mostly used display and comprehension checks during the courses. The disciplinary background and instruction type did not have much effect on teacher talk. The second situation was assumed as a result of floor effect that may have resulted from the dominance of Chinese pedagogical politics or the teachers' lack of proficiency in English language.

Meneghetti (2016, p: 67) investigated the interaction in five EMI classrooms in an Italian university. The study analyzed some EMI classes in terms of interactivity to investigate different classroom strategies, specific questions that the lecturers used to involve the students into the interaction. The study concluded that most frequently used teacher question was referential questions and then display questions. Class management question (clarification question in my study) and questions seeking explanation (clarification request in the present study) had very minimal use by the lecturers.

2.8.2. Previous Studies about Student Talk in EMI Classrooms

It is hard to find a study conducted from students' perspective, specifically about student talk in EMI discourse. Duran (2017: p. 178) investigated student-initiated questions, features of these questions and how students managed interactional resources. The data was obtained from a 30-hour video recorded full EMI courses in HE in Turkey. The categorization of questions consisted of procedural and task-related questions, content-related questions and terminology-related questions. The study concluded that procedural and task-related questions were mostly used. It was also revealed that teachers used L1 in individual issues and then switched to English with the transition to the whole-class interaction. While students used L1 persistently, the teacher continued to use adopted mediation language.

Navaz (2013: p. 133) searched for the interaction between teacher and student based on the perception and practice of the lecturer and the students in EMI science

courses in a university in Sri Lanka. The researcher hypothesised that more dialogic interaction between the teacher and the student would enable the students both to understand the content and to develop language proficiency rather than recitation scripts related to non-dialogic interactions. After the appliance of questionnaires, group interviews and classroom observations, the study revealed that 97% of the students did not answer the lecturers' questions. The reason reported from the students told that they had fear of the wrong answer, lack of language proficiency, and assumption that the answer was not known. The lecturers reported the same reasons with those of students. As discussed in the previous part, Dafouz and Sánchez-García (2013: p. 138) had similar consequences in terms of teacher-student interaction in their study which demonstrated that the number of teacher questions was not mainly correlated with the students' responses.

Morell (2007, p: 227) conducted an interactive lecture discourse study. The interaction level was investigated in a university in Spain and it was also looked for what would increase teacher-student interaction in content-based courses in the English Studies Department. The study compared interactive and non-interactive classrooms. It investigated some kind of classroom features like discourse strategies and questions. Also, the features in interactive classes like personal pronouns and discourse markers were observed. Finally, the results in the study suggested that discourse strategies one of which was questioning shortened the distance between teacher and student. Furthermore, it was proven that not only linguistic features but also the beliefs and attitudes of the teacher had a considerable effect on the participation of the students into the classroom interaction.

Meneghetti (2016, p: 87) investigated the interaction in EMI classrooms through searching for teacher questions as stated in the previous part. According to the results, most student talks were observed in the classrooms where the number of students was least. Also, it was found that there was no correlation between student talk and teacher questions. The study of Hu and Lei (2014: p. 197-199) observed lower-order student responses to the low-order teacher questions. Few responses required high cognitive skills from the students like the transition of familiar or unfamiliar knowledge into another activity or analyzing or synthesizing a structure

which was expected to be an outcome in return to a high-order teacher question. The researchers reported that the most challenging teacher question types were not available in the courses nor were student questions.

Menegale (2008, p: 105, 116-119) conducted a study in a CLIL context to see the teacher questioning and how it promoted the learning of student by involvement in interaction. The study focused on three question types produced by the teachers: convergent, divergent questions with their sub-categories and procedural questions. It was found that the majority of the questions were composed of low-order convergent questions. When it comes to participation, it was reported that 85% of classroom talk belonged to the teachers. Regarding the fulfilment and the requirements of the curriculum, they saw student talking time as a luxury. Especially convergent display questions seemed to restrict student talk and enabled the teacher to keep up with the curriculum.

CHAPTER III

3. METHODOLOGY

3.1. INTRODUCTION

This chapter describes the methodology that I followed in the study. I represented a description of research design, setting and participants, and data collection methods. Then, I talked about the issues of validity and reliability and how I ensure them. Finally, I presented how I analysed the data.

3.2. RESEARCH DESIGN

The study is predominantly based on the social interactionist perspective which focuses on the interaction and discourse and which holds a discourse analysis framework for classroom interaction. To understand the nature of education, we need to focus on interaction in educational settings as interaction is one of the key components of them. Social interaction studies extract social patterns from external life and enhance to examine them in their social interaction setting. This kind of study also helps cognitive patterns move out of mind and focus on them in social interaction specifically (Mehan, 1998: p. 245).

The present study is primarily a qualitative one. With its simplest definition, qualitative research refers to studies that are based on descriptive data and do not use statistical procedures (Mackey and Gass, 2005: p. 167). Qualitative research provides careful and detailed descriptions and presents a natural and holistic picture of a setting rather than take the control of a setting. This research type is not concerned with the issues of generalizability and try to interpret the phenomena in terms of the

meaning of its fewer participants (Mackey and Gass, 2005: p. 162). Duff (2008) claims that the qualitative study has gained growing recognition and acceptance since the mid-1990s. So, this study uses the typical qualitative data gathering method: observation. Additionally, this study focuses on what rather than how and why something has happened which refers to descriptive study. So, the observation was used mostly to gather data. (Gall, Gall and Borg, 2007).

The present study also uses descriptive statistics to explain the types and functions of the questions, talks of the students and to compare their outcomes in data subsets. So this study has also a quantitative aspect. The integration of quantitative and qualitative methods gives a broader sight to the study by their complementary roles. In other words, mixing the methods allows a deeper and better understanding of the phenomena (Johnson et al., 2007: p. 112). It is also worth to say that both methods have not been used throughout the study. I used the quantitative method only during the interpretation of the data which was collected through qualitative methods.

3.4. RESEARCH SETTING AND PARTICIPANTS

In qualitative researches, the researchers tend to use purposeful sampling and context, which serves best to the aim and framework of a study and help to understand the core of the phenomenon (Creswell, 2011: p. 45). Based on this fact, I used purposeful sampling in this study as well as intending to reach 'individuals who can provide rich and varied insights into' my research (Dörnyei, 2007, p. 126). The university where the current study was conducted is one of the major state universities in Turkey. It is quite prestigious as a result of its works, staff, student recruitment criteria. I chose the university based on two major decisions: a) lecturer profile, experienced in EMI instruction and b) different fields in EMI under research at a context. According to the data presented by ÖSYM (2019), the university has four main faculties, namely Management, Architecture, Engineering and Basic Sciences Faculties. The medium of instruction is English in all programs of Engineering and Basic Sciences Faculties and it is implemented fully while it is partial in Management and Architecture Faculties. According to the facts collected

from the updated official website of the university, its mission is to keep its existence with high-quality education and teaching to the not only benefit of the students but also to the social society and industry of the region. The university was designated as one of ten research universities in Turkey during the opening of the 2017-2018 academic year. The university first started with graduate programs and continued with doctoral programs in the following years. It has offered undergraduate programs in the last ten years. The 70% per cent of the academic staff has a PhD degree from prestigious universities of the US and UK. As of 2018, the university has 8132 students with more than 55% studying at the graduate level. Within the scope of Erasmus+ Programme, it has agreements with more than 100 universities in Europe and gives 1 out of 5 students the opportunity of one-year studying in one of those universities. Finally, the university has a significant ranking in Entrepreneurship Index by the Ministry of Science, Industry and Technology, has an award by the European Commission and has a partnership with IT Valley.

There are seven participant lecturers in the study. To maintain their anonymity, I used shortages for them instead of real names. With the background survey, I collected data about some demographic features of the lecturers. Teacher 1 (T1) is an NNS of English. He is male and has his doctorate. He has not inserted his age. He teaches Real Analysis so he works in the Mathematics Department of Basic Sciences Faculty. He has never been abroad and he has been teaching for 11-15 years. Teacher 2 (T2) is also male and 39 years old. He has the title of associate professor. He teaches Statistics as a content subject and he is a member of the Mathematics Department of Basic Sciences Faculty. He has stated that he stayed abroad for 2 years and had the opportunity to study for one year there. The lecturer has been teaching for 11-15 years and his home country is also Turkey. Teacher 3 (T3) is a male doctor lecturer. He delivers the courses of Numeric. He works in the Mathematics Department. He has not inserted his age and experience abroad. He has been teaching for 11-15 years. Teacher 4 (T4) is a male professor and teaches Molecular Biology and Genetics as a content subject. He has been abroad for 7 years for staying and he spent 5 years studying there according to his report. His home country is Turkey and he has been teaching for 16-20 years. He has currently been teaching at Molecular Biology and Genetics Department of Basic Sciences Faculty.

Teacher 5 (T5) is a male, 50-year old associate professor and he has been teaching Computer Science 101 course. The associate professor has been teaching in the Computer Engineering Department. He has been teaching for 16-20 years. He has 8 years studying and staying experience abroad. His home country is Turkey. Teacher 6 (T6) is 49 years old and a male professor and his teaching subject is Object-Oriented Programming and he has been currently teaching at the Computer Engineering Department. As the professor reported, he stayed abroad for 11 years and studied for 7 years there. He has been teaching for approximately 16-20 years in total. The professor is from Turkey. Teacher 7 (T7) is a 37-year old male and has the title of doctor. His teaching subject is Chemistry and he has currently been teaching at the Bioengineering Department. He has been abroad for studying and staying for 7 years. He has been teaching for 1-5 years. The lecturer's home country is Turkey.

As well as the lecturers, this study mainly focuses on the students. The real names of the students were not used and shortages with numbers were used for them like S1 for the first speaking student. The lecturers and the students are informed beforehand and consented for video recording. I had consent forms for the students but I took permission from lecturers by face to face talking. When it comes to general features of the students in the study, they must receive the predetermined score by the university entrance exam before enrollment to the university. After recruitment, the students take university Proficiency Exam. The students who fail to pass the exam with a minimum of 60 points (CC, according to the Common European Framework Reference (CEFR) standards) out of 100 must attend the preparatory program, which lasts for one year. After the students are placed according to their English proficiency level, they need to collect a minimum of 65 points to pass a proficiency level. Before taking the last proficiency level at the end of the year, each student needs to pass each level successfully. This means that the students must have a minimum of 65 points for A level at the end of the year. As stated on the website of the university, the students take an Academic English course as well as Reading and Speaking in English courses. It should be underlined that the students are those who passed the preparatory classroom successfully. The observed classrooms were quite wide and most of them were the same in terms of shape and area. I felt the need to fix the camera a little closer to the lecturer because of the size

of the class. Only the classroom where Writing Rules and Research Ethics course was delivered was quite smaller than the others.

3.5. DATA COLLECTION

To conduct my study, I consulted to the secretary of vice-Chancellor of the target university for permission after I decided my study context with my advisor. I took the approval of the university after an explanation about the study, then I contacted the lecturers working at the EMI programs of the university. I communicated with lecturers via email at the first step, then informal meetings were arranged with them and told the content of the study face to face. After the acceptance of the participant lecturers, I introduced myself to the students before each session by the request of the lecturers. To prevent the assumption of social desirability (Dörnyei, 2007: p. 54), lecturers and students were not informed with the very specific details of the study. In this way, any possible change in the behaviours of the participants was tried to be avoided and the usual flow of classroom discourse development was expected. I also delivered consent forms prepared for the students and requested from students to read and fulfil them before sessions (see Appendix 1). I observed the classes in the Fall Term of 2019/2020 academic year, from the first week of November to the second week of December. The observed classrooms were quite large and there were at least 22 and at most 35 students in those classrooms. I observed the classrooms with one camera.

In the current study, the primary research tool was observation. Through the observation technique, I used natural video and audio recordings for the sessions in the classrooms, took field notes as a non-participant observer and used a small survey to gather information about some specific demographic features of the lecturers. (see Appendix 2). I used these integrated techniques to see the same classroom environment from different perspectives and increase the reliability of the study. Also, I tried to get the perspective of residents from the classroom with field notes and sensitive non-participant position as well as to understand how they manage interaction in their natural environment (Ellis and Barkhuizen, 2005: p. 150). Audio and video recording helped me analyse the interactions, question types of the

lecturers and student talk which are the main focuses of the study, also helped to focus on the language use deeper after the recording and helped me to get involved in the analysis of the authentic data as it is stated by Mackey and Gass (2005: p. 175). Field notes are mostly taken during the interaction times between teacher and students about unobserved issues like the researcher's intuitions and questions, unspoken research-related behaviours outside the camera's view. Field notes contribute to the interpretation of recorded data outside the classroom. I used a small survey to explore the gender, home country, teaching experience years, experience abroad which provide a source to the analysis of the lecturers' classroom behaviours. Consequently, the main focus of the observer affects what is observed and the analysis of the data obtained from observation and recordings (Evertson and Green, 1986: p. 162). Based on this statement, my research questions shaped the nature of my data collection techniques and the analysis of the data. I focused on the classroom discourse of EMI courses so I mostly dealt with the transcription of the data recorded during observation.

During my recording, I positioned the camera with a tripod at the backside of the classrooms by seeing the face of the lecturer. The shape of the classrooms was quite alike and I preferred to keep the camera in a stable position to avoid disturbing the usual development of the courses. In addition to this aim, Mackey and Gass (2005: p. 186) warn the researcher to refrain themselves to participate any interaction in classroom observations as it may distract the researchers to take important field notes which is a necessary part of qualitative studies. They also report that the involvement of the researcher may alter the natural development of classroom interaction. I was present in all recording sessions sitting at the very backside of the classroom abstaining from speaking or dealing with the camera which I fixed before the sessions as quickly as possible. These precautions bore the advantage of not changing casual development of the lectures because both the lecturers and the students mostly behaved naturally as they admitted forgetting the video recording at the end of the courses. Yet, it brought about some critical disadvantages as immobility which sometimes caused low-quality sound recordings when the lecturer moved around the classroom and kept away from the camera and the responses of some students could not be captured which resulted as inaudible.

Classroom research should include at least between five and ten lessons for an acceptable database according to the Seedhouse (2004: p. 240). I followed the choice in this philosophy and collected a total amount of ten lessons, three couple of which are belonged to the same lecturers. The total data for the current thesis comes from the transcription of 18 hours, 59 minutes and 33 seconds video recording of 8 different content courses for approximately four weeks at a university which adopts EMI in most of its programs in Turkey. The names of the courses are Real Analysis (Mathematics) offered to 3rd-year students, Statistics (Mathematics) offered to 3rd-year students, Numeric (Mathematics) offered to 3rd-year students, Special Topics in Molecular Genetics (Molecular Biology and Genetics) offered to master and PhD students, Writing Rules and Research Ethics (Molecular Biology and Genetics) offered to 4th-year students, Introduction to Computer Science Laboratory (Computer Engineering) offered to 1st-year students, Object-Oriented Programming (Computer Engineering) offered to 2nd-year students, Chemistry offered to 2nd-year students. I observed Object-Oriented Programming and Chemistry courses twice in two different days and the other courses for once. The duration of each course and session is different (see Table 1).

Table 1.

Features of the observed courses

Name of the course	Lecturer	Duration (hour, minute)	Level of the class
Real Analysis	T1	109,43	3rd year
Statistics	T2	74,46	3rd year
Numeric	T3	142,43	3rd year
Special topics in Molecular Genetics	T4	104,36	MA and PhD
Writing Rules and Research Ethics	T4	87,45	MA and PhD

Table 1. (continued)

Features of the observed courses

Name of the course	Lecturer	Duration (hour, minute)	Level of the Class
Introduction to Computer Science Laboratory	T5	102,46	2nd year
Object-Oriented Programming (session 1 and 2)	T6	90,59 (1) 103,2 (2)	2nd year
Chemistry (session 1 and 2)	T7	159,49 (1) 162,47 (2)	2nd year

3.6. ISSUES OF VALIDITY AND RELIABILITY

3.6.1. Validity

Lincoln and Guba (1985: p. 115) put forward four terms, namely credibility, transferability, dependability and confirmability in their framework instead of the traditional terms internal and external validity, reliability in qualitative studies. I will represent the trustworthiness of the present study by addressing each of the criteria.

3.6.1.1. Credibility

Credibility is defined as a balance between the data collected from the participants and the presentation of this data by the researcher (Tobin and Begley, 2004: p. 391). There are some recommended techniques to ensure this balance like prolonged engagement, persistent observation, data collection triangulation. I observed the lecturers for the entire class, a minimum of 74 minutes, with different sessions of some courses and videotaped them. Video recording of all sessions enabled me to obtain the frequency numbers of teacher questions and student responses as well as nonverbal behaviours replacing these patterns. Additionally, I took field notes, questionnaires for demographic features of the lecturers. Furthermore, I used quantification analysis to facilitate a more holistic look at the

questions used by each lecturer. I also debriefed with two reviewers experienced in classroom discourse after the transcription and coding of the patterns to check the consistency in the analysis which will be presented in the next part.

3.6.1.2. Transferability

Transferability is regarded as generability in traditional inquiries. Lincoln and Guba (1985: p. 130) state that it is not the responsibility of the researcher to supply an indication of transferability but the task of the researcher is to provide a thick description so that people who wish to make the transfer the findings to have a conclusion can evaluate the transferability. So, a thick description of how each step of the study was carried out has been reported. A thick description of data collecting process, observation, data analysis and their presentations in visual formats (tables, figures, charts, Nvivo correlation networks), as well as excerpts from courses under observation, are provided. This "database" helps the possible appliers to develop a judgement for the transferability (Lincoln and Guba, 1985, p. 136).

3.6.1.3. Dependability and Confirmability

According to Lincoln and Guba (1985: p. 200), when the readers of the study can follow the research process, they can evaluate the dependability of it better. One of the ways to ensure the dependability of a study is to make it audited. The audit process provides the proof of the preferences of the researcher to the readers as to methodological matters in all study which should be based on a clear reason for the preference (Koch, 1994: p. 977). Also, Koch (1994: p. 978) states that another researcher should have a similar or the same conclusions with the study by the same data and perspective. By the help of an auditor (an expert out of my thesis committee), the conclusions of the study with the help of documentation were inspected as well as the data collection instruments, data reduction, analysis of raw data based on the idea of Lincoln and Guba (1985: p. 185). They state that the auditor should behave like the possible reader of the study report as the potential reader may not have possibility or time to access the data for a detailed evaluation of the trustworthiness of the study. For the sake of increasing the transparency of the

study, the framework of Lincoln and Guba (1985: p. 200) was followed. The framework includes six categorisations, namely 1) raw data, 2) data reduction, 3) data reconstruction, 4) process notes, 5) materials related to intentions and 6) introductory development information.

Confirmability is the evidence of the fact that the implementations and the conclusions of the researcher are clearly obtained from the data which requires the researcher to present how the conclusions have been reached (Tobin and Begley, 2004: p. 392). There are markers of the reasons for methodological and theoretical preferences throughout the study. Furthermore, Lincoln and Guba (1985: p. 185) assumes that when the credibility, transferability and dependability of a study are managed successfully, confirmability is established.

3.6.2. Interrater Reliability

After I identified and coded the teacher questions and student responses, I asked two external reviewers to examine the patterns for increasing the reliability and establish the consistency of the data. Both of the raters have masters in ELT programs and they have studied on classroom discourse before. They are both familiar with coding and especially with the types of teacher questions. 15% of the data were selected randomly as a chunk and both of the reviewers are asked to choose and identify the questions of teachers and the responses of the students. Also, the raters were requested to classify the patterns which they identified. I prepared a manual for this process in which I described the patterns in categories and presented two examples for each pattern. The manual was given to the raters and they rated according to the manual. The patterns in the manual were not used in the randomly selected data for the reviewers.

Hartmann, Barrios and Wood (2004) suggest that exact agreement between raters of 80 to 90 per cent can be accepted as sufficient for interpreting the agreement of reliability but the exact agreement between raters of 70 per cent is sufficient for more complex instruments. With this pre-determined criterion, I checked the codes with each of the raters separately via online meeting. During the second-rating, we

sometimes revised the codings either on my coding or on the second rater's coding. After the checkings, it was found that there was 97% consistency in teacher questioning and 96 % in student talk with the first reviewer. There was 89% consistency for the teacher questioning and 93% for student talk with the second-rater. There is a presentation of the results obtained from interrater reliability in Table 2.

Table 2.

An overview of interrater reliability

Patterns	First Rater (%)	Second Rater (%)
Teacher Questions	97	89
Student Responses	96	93

3.7 DATA ANALYSIS

The purpose of this study is to explore the question types and the functions of these questions produced by the lecturers and to what extent these questions trigger student talk. To succeed in this purpose, I focused on teacher questions and student utterances and each interaction that occurred in the classroom. Based on this purpose, I followed the discourse analysis method applied in the doctoral thesis of Yuksel (2007: p. 61) which adhered to the model of social interaction.

3.7.1. Data Transcription

I transferred all recordings from the camera to my computer, then I watched all the videos for a few times. At this beginning stage, I watched the videos with an unmotivated looking (ten Have, 2007) meaning looking without focusing only on exact research questions but in a broader perspective to see where the interaction starts and ends, which behaviours mean to the exact point under research and every other feature under interest based on the informed guess and relevant literature as guided by Lazaraton (2002: p. 130). After unmotivated looking, I transcribed them all word by word on my own because I would like to read the transcripted version of

the data for a few times for not to overlook relevant features with my research. Already available software programs did not work for me in this process as I found some errors in the transcriptions of those programs because of the varieties of English used by the lecturers. Yet, I used a software program, namely InqScribe. I used playing features of this program such as starting back 8 seconds each time when I stop, shortcuts defined on the keyboard and many other beneficial functions. The program provided me to capture embodied movements referring to lecturer questions and student answers with its video player feature and also helped me work in a shorter and more comfortable time. Transcribed data of all sessions were 18 hours, 59 minutes and 33 seconds in 265 pages. I transcribed the data according to the transcription convention presented in Table 3.

Table 3.

Transcription convention

Symbol	Meaning
T1, T2, T3	Identified Teacher Turns
S1, S2, S3	Unidentified Student Turns
(+)	Pause (+: one second)
[	Overlapping speech
]	
(( ))	Extra information from the researcher
[Tr.]	Utterances in Turkish

3.7.2. Data Indexing

Data indexing requires the definition of the context where data has occurred. It means that it is necessary to explain where and when the data has emerged (Jacob, 1987: p. 20). First, I described the sessions and gave some titles to the transcriptions of each session. By this process, I could differentiate the question types and especially student talk types according to the lecturers and the courses.

3.7.3. Data Reduction

Data reduction is an essential part of qualitative data analysis (Ellis and Barkhuizen, 2005: p. 139). Data reduction can be implemented by summarizing, coding, paraphrasing or indexing. The real focus of this study is not about the overall nature of EMI courses, rather it is about the teacher questioning and student talk in the courses delivered by EMI. As a result, I gave place to the teacher-initiated questions and student-initiated talks before and after teacher questions and I excluded the other parts of the data. To analyse related features, I carefully read the whole transcription for three times. How I chose the patterns as teacher question and student talk will be explained in detail in the coding part.

3.7.4. Second Data Indexing

During the phase before coding, I transferred all transcriptions into a table on word (doc.) sheets. I categorized the table into three columns as in the example of Figure 1. After I decided the patterns, I organised them in a table including three columns. I gave numbers for each turn in the first column. I inserted the names of the speakers in each turn in the second column. In the third column, there are the utterances of the speakers. I stated the names of the courses, duration of the courses for each transcribed part and the number of the session as I observed two courses with multiple sessions in different days (see Figure 1).

Object-Oriented Programming (14.00 – 15.31) (1.2)		
416	T6	So, this is not the first time that you are seeing this class. Did you see this before?
417	S66	I think yes.
418	T6	You think yes. Yes or no? Just say yes or no?
419	S66	I am not sure.

Figure 1. An excerpt from the indexed session

3.7.5. Coding

One of the most frequently applied techniques in qualitative data analysis is coding. Coding is organizing data into concepts and patterns so that the researcher can use it for continuing research analysis, explanation and the drawing of conclusions (Ellis and Barkhuizen, 2005: p. 139). It includes categorization of the data, assignment of codes to the categories which are defined previously and which represent the patterns or which may occur during the data analysis process. Ellis and Barkhuizen (2005: p. 145) also state that deductive and inductive techniques can be used during coding. I used deductive coding as I began with predecided coding patterns before implementation data analysis through coding. Yet, I also used inductive coding technique which means the emergence of new codes during analysis. In other words, I took some student questions and non-verbal behaviours as student talk which occurred as an answer to the teacher question or were produced as an uptake in an interaction. I implemented coding process through Nvivo (version 12 for the first coding and the last version released March 2020 for checking the excerpts) which is an analytical software program allowing systematic storage of all transcribed data separately for each course and each pattern under research (see Figure 2). The program also enables the researcher to analyse the proportion of the patterns in their categories, to take the correlation of required codings, and to take specific notes on the categories which I used in findings part.

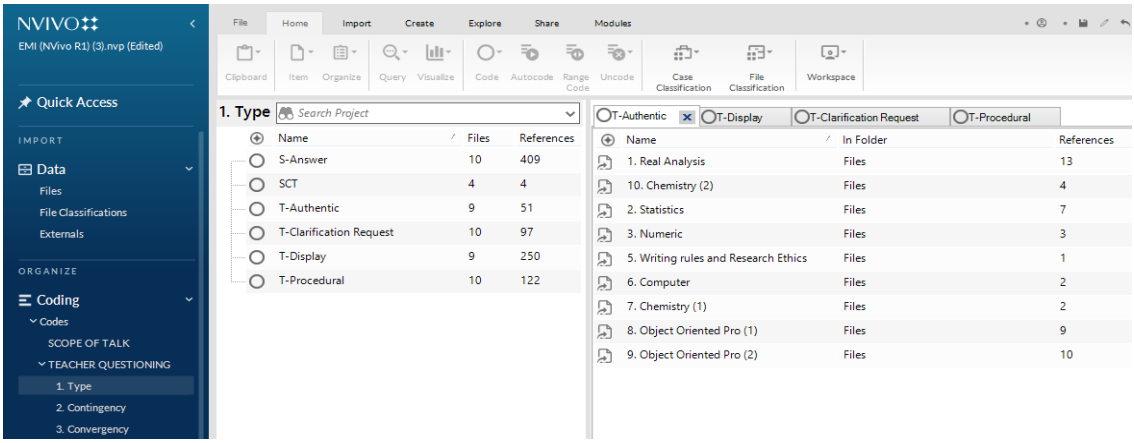

Figure 2. A screenshot of the coding system in Nvivo

First of all, my research interest in coding was teacher questions. Then, I focused on the coding of student talk.

3.7.5.1. Coding of Teacher Questions

Teacher questions were marked based on the three features as pointed out by Sánchez-García (2016: p. 113): (1) the syntactic form (e.g, inversion, wh-words), (2) the intonation and (3) the function of the utterance. After the selection of utterances as question forms, I followed the taxonomy of Boyd (2015: p. 383, 384) in analysing the teacher questioning. I focused on four categories of questions: (1) the scope of teacher questions (textual and extra-textual questions), (2) typology, (3) contingency and (4) convergence and divergence of teacher questions.

3.7.5.1.1. Coding According to Scope of Teacher Questions

The type of discussed topic affects the type and the function of teacher questions as well it influences the length and complexity of student talk. Especially, analysing the functions, namely the contingency, convergence and divergence of teacher questions was quite hard in EMI setting rather than the typology of the questions. So, labelling the questions as textual or extra-textual (text-based or text-inspired) facilitated the interpretation of the patterns meticulously. Also, the kind of discussed topic was observed to see any effect of it on the student involvement in the interaction. Teachers' transition to opening an extra-textual topic with a question facilitated the detection of student turns whether they were Students Typical Talk (STT) or Student Critical Talk (SCT). According to the classification of Boyd (2015: p. 385), I labelled the teacher questions as textual when there was a vocabulary or a word arisen from the text under discussion and related with the content and labelled them as extra-textual when there was no direct reference to the text and it led to a new episode. Textual teacher questions were coded in Teacher-Textual and teacher extra-textual questions were coded in Teacher-Extratextual folders in NVivo program.

3.7.5.1.2. Coding According to the Typology of Teacher Questions

I focused closely on the types of teacher questions. The teacher questions were coded as *authentic, display, clarification request* or *procedural* in terms of typology.

Teacher Authentic Questions: Boyd (2015: p. 373) identified an authentic question as the one to which the asker does not know the response and which can be sometimes called open-ended questions. This kind of question leads to a range of answers from students and often encourage students to bring a new topic to the classroom environment. This process can shape the scope of classroom discourse. I coded teacher questions as authentic when (1) it had more than one possible answer, (2) the answer of the question was not known by the teacher, (3) it was asked to learn the opinion of the students.

*Teacher Display Questions:*Display questions are to which the asker has a specific predetermined answer and which the asker uses to see the demonstration of the respondent's awareness of that answer (Boyd, 2015: p. 373). This question type is also known as closed questions. I coded teacher questions as display questions when (1) they had one exact predetermined answer, (2) the teacher already knew the answer, (3) it was asked when the teacher had an intention to check whether the students remembered the answer or not.

Teacher Clarification Request: This question seeks an explanation about or redefinition of previous contribution (Boyd, 2015: p. 383). They usually provide clarification for the dilemma and provide useful feedback. Clarification requests were observed to support students to produce repair or peer repair. I coded questions under clarification request title when they brought a redefinition or explanation of the preceding answer by the respondent or another class member.

Teacher Procedural Questions: This question type is mostly related to behaviours in the classroom (Boyd, 2015: p. 382). To be more clear, this type of questions are used to manage what is happening in classrooms. I coded questions as

procedural when they were produced to manage classroom matters or problems and when they were about events out of the topic under discussion like assignments.

3.7.5.1.3. Coding According to the Contingency of Teacher Questions

Boyd (2015: p. 382) defines contingent question as an explicit contribution emerged in three preceding utterances. Its typology may be in the form of authentic or display, open or closed questions. The underlined feature of contingent question is its functions to promote students to think and explore. It creates a bridge between ideas and contributions. Nystrand et al. (1997) argue that this question brings along uptake which has a function both to construct on previous contributions and to manage the future of the scope. The required features for the contingency of a teacher question in this study were (1) taking place in three preceding utterances, (2) being related with previous contribution semantically, (3) initiating a new inquiry provided that it was in three preceding utterances.

3.7.5.1.4. Coding According to the Convergent and Divergent Dimensions of Teacher Questions

Convergent question is a kind that keeps the continuity of an aspect of the topic under discussion (Boyd, 2015: p. 382). The answers to this question are in a very limited range of acceptable accuracy. In other words, it may result in yes-no answer simply. However, it may urge the respondent to make inferences based on personal awareness or discussed topic to some extent. I coded teacher questions as convergent if it homed in only one aspect of the topic adhering to the classroom discourse condition.

The divergent question brings a new dimension to the scope under discussion (Boyd, 2015: p. 384). Students feel to produce longer answers, explore different variations and alternative scenarios. Accuracy of the answers to this type of question may be based on basic knowledge, intuition, inference, imagination or logical projections. This question requires the respondent to analyse, synthesize or evaluate a knowledge. A teacher question should have opened up one progressing aspect or a

new aspect of the topic under discussion to be coded as divergent in the present study.

3.7.5.2. Coding of Student Responses

3.7.5.2.1. Coding of Student Critical Turn

One of the main analysis points of the current study is student critical turns (SCTs). The definition of SCT is at least 10-second talk without interruption as it is defined by Boyd (2015: p. 376). This definition is not selective enough as longer utterances are produced quite intensely in some sessions. To characterize as SCT, these utterances were categorized as *coherent* and *evidence of substantive engagement*. Carrel (1982: p. 480) explains coherent utterance as being meaningful in an episode and not only being an unusual interpolation in a conversation. Nystrand et al. (1993: p. 17) notes that substantive engagement is an apparent uptake produced by another member in the classroom. I coded student talk as SCT when it had two features at the same time: (1) longer than ten seconds (>10 s) and (2) coherent in an episode or (3) uptake by a respondent or another classroom member. I did not only take into account longer student talk or student questions that initiated an episode.

3.7.5.2.2. Coding of Student Typical Turn

As I defined SCTs as longer than 10 seconds, all student talk that was shorter than 10 seconds or longer than 10 seconds but not coherent or a result of the substantive engagement was categorized as Student Typical Turn (STT) in the study based on the framework drawn by Boyd (2015: p. 386). After I decided the boundaries of SCTs, remaining features about student talk was attained to STT. In other words, student utterances that (1) were shorter than ten seconds (<10) or (2) were longer than ten seconds (>10 s) but not coherent or an uptake were coded as STT.

Table 4 presents an overview for the constructs that I have used in the study, with their definitions, examples from the corpus for each construct and the references which the constructs were investigated and originated.

Table 4.

An overview of the research constructs

Construct	Definition	Example from the corpus	Reference
Textual Question	A question related directly with the point under discussion. It has vocabulary arisen from the text.	**Real Analysis (1.1):** T1 What is the Euclidean space? In general?	Boyd, 2015.
Extra-Textual Question	A question leading to a new discussion. There is no explicit reference to the text.	**Object-Oriented Programming (1.1):** T6 Did you study this one? Anybody tried to write this something similar like this compile it?	Boyd, 2015.
Authentic Question	The asker does not know the answer. The question provides students to express their ideas without restriction. It has the potential to change the scope of the course.	**Numeric (1.1):** T3 In this case what do you have as an idea to decrease this derivative? can you think of a way to decrease the derivative in absolute value of the function? Can you think of?	Boyd, 2015; Nystrand and Gamoran, 1997.
Display Question	It is used for checking students' knowledge. The asker has a predetermined answer. It usually has one correct answer.	**Real Analysis (1.1):** T1 How can we pass from this result to uncountability of real numbers?	Boyd, 2015; Nystrand and Gamoran, 1997; Long and Sato, 1983.

Table 4. (continued)

An overview of the research constructs

Construct	Definition	Example from the corpus	Reference
Clarification Request	It brings about redefinition or repetition of preceding contribution.	**Object-Oriented Programming (1.2):** T6 Explain it a little bit more? What do you mean? **Chemistry (1.1):** T7 Can you say it again?	Boyd, 2015; Lyster and Ranta, 1997.
Procedural Question	It is used for directions and behaviours.	**Chemistry (1.1):** T 7 Which part I will erase? Did you write this part?	Boyd, 2015.
Contingent Question	It is produced by a teacher or student as a contribution produced in three preceding utterances. It is associated with the notion of *uptake.* Its type can be authentic or display. It builds a bridge between ideas.	**Statistics (1.1):** T3 What may it be? S11 NX the combination. T3 Yeah yeah. ok. We have N trial dependent real and we have number of success as X. So, what is the order? What is the order?	Boyd, 2015; Collins, 1982; Nystrand et al., 1997.
Convergent Question	A question that supplies a continuum for an aspect of what is being discussed. It usually brings yes-no, a single correct or short answer.	**Chemistry (1.2):** T7 Is this reaction endothermic or exothermic? Ss Exothermic. T7 Yes. Exothermic. Then, the delta is from the minus or plus?	Boyd, 2015; Richards and Lockhart, 1994.

Table 4. (continued)

An overview of the research constructs

Construct	Definition	Example from the corpus	Reference
Divergent Question	It opens a new floor to an aspect of what is being discussed. It leads the students to give longer and more complex answers.	**Writing Rules and Research Ethics (1.1):** T4 Is there an example from the class? Ethical situation, for example?	Boyd, 2015; Richards and Lockhart, 1994.
Student Typical Talk	All student talk that is shorter than ten seconds or longer than ten seconds but not coherent or a result of substantive engagement.	**Real Analysis (1.1):** T1 Is this a closed subset? S4 No. **Object-Oriented Programming (1.2)** T6 How are we gonna solve this problem? S46 Maybe we write a function to turn cent.	Boyd, 2015.
Student Critical Talk	It should be longer than ten seconds and also it should be coherent and evidence of substantive engagement.	**Object-Oriented Programming (1.2):** T6 What does this say? If you are overloading an operator, at least one operand should be class type like a string or bank account or money or board, Npuzzle. S53 Both of them are fundamental types. We wouldn't been have to overload them. Because they are already known.	Boyd, 2015; Carrel, 1982; Nystrand, Gamoran and Heck, 1993.

3.7.6. Quantification of Data Analysis

In qualitative research, descriptive statistics like quantification of the frequencies of the observed data provide a better understanding of the aimed phenomenon to see their statistical significance (Dörnyei, 2007: p. 197). It also offers a different standpoint to the researcher and enables the researcher to see the data from a different perspective. Regarding my research questions, I used numbers, percentages and statistical verification. Particularly, my first research question is about the lecturers' use of questions types. Using quantification helped me in better presentation of findings, the establishment of better reader-friendly documentation. Therefore, I used quantification for each kind of pattern used for teacher questions and student talk.

CHAPTER IV

4. FINDINGS

4.1. INTRODUCTION

This chapter presents the results of the data analysis under the light of the research questions. There are two research questions in this study. The first research question focuses on teacher questioning in EMI classrooms and subcategories of the questioning. The second research question deals with how the varied forms and responsible use of teacher questioning attract and manage student talk and result in various and more featured student talk, which is a proof of students' comprehension building. To answer these research questions, findings will be presented in a quantitative standpoint initially, then a much more detailed and fine-grained analysis will be delivered from a qualitative perspective.

4.2. RESEARCH QUESTION ONE

The first research question deals with the teacher questioning in EMI setting. The scope, typology, contingency, convergent and divergent nature of the questions are the main focuses of the first question. I will present the findings of this question in four subcategories with their subtitles. First, it would be beneficial to look at the quantification of teacher questions in all corpus in Figure 3.

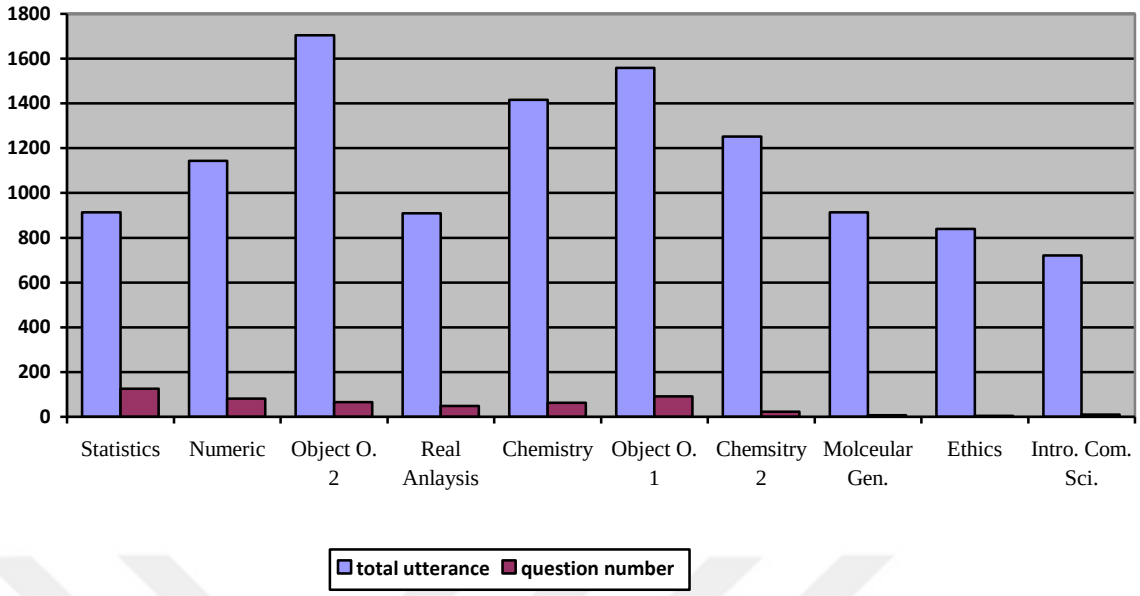

Figure 3. The distribution of teacher questions for each session

Figure 3 illustrates the distribution of teacher questioning per each session. The percentages are sorted from largest to smallest. The sentence-level highest teacher questions were observed in Statistics course of T2. In that course, there was a nonstop interaction flow in the classroom as the course was based on accounting and the lecturer was quite successful to enable students to participate classroom activity as well to check their learning outcomes interactively. The least frequency of teacher questions was found in Introduction to Computer Science Laboratory course delivered by T5 offered to 1st-year students. Although the lecturer used presentation and other visual supportive materials and implemented the course interactively, he did not prefer questioning much.

The total frequency of teacher questions in all courses was calculated by comparing the total utterances number with the question level utterances (see Table 5). As a result, a total amount of 11.371 teacher utterances was used in the corpus. Statistics course has the highest frequency in questioning with 13,69% of the all utterances in the corpus. Second most frequent question use is in one of the mathematical courses, Numeric delivered by T3. The third most frequent question use is implemented by T6 in the first session of Object-Oriented Programming

Course. The lowest ratio belongs to the Introduction to Computer Science course with a percentage of 0,13% delivered by T5.

Table 5.

Percentages of teacher questions relative to the number of total utterances

Courses	Number of utterances per session	Number of questions	Ratio (%)
Statistics	913	125	**13,6 9**
Numeric	1143	82	7,17
Object Oriented Programming 1	1559	92	5,90
Real Analysis	909	48	5,39
Chemistry 1	1416	63	4,44
Object Oriented Programming 2	1705	66	3,87
Chemistry 2	1252	23	1,83
Special Topics in Molecular Genetics	913	7	0,76
Writing Rules and Research Ethics	840	4	0,47
Introduction to Computer Science	721	10	0,13
Total	**11.371**	**520**	**4,58**

As it is seen in Table 5, 520 out of 11,371 utterances were composed of teacher questions in the corpus meaning 4,57% of the data includes teacher questions.

4.2.1. The Scope of Teacher Questioning

As it has been explained previously, the scope of teacher questioning can supply successful management of interaction in classroom discourse or can lead the future of the discourse. Before typology, the scope of teacher questions can give a detailed presentation of results and the atmosphere of the questioning. There are two categories for the scope of questions, textual and extra-textual.

Table 6.

The distribution of the scope of teacher questioning

	Number of questions according to scope	Percentage of questions according to scope(%)
Textual teacher questions	511	98,26
Extra-textual teacher questions	9	1,73

Table 6 demonstrates the numbers of two different scope of teacher questioning. The lecturers have produced 520 questions and a total of 511 of these questions are textual and 9 out of 520 questions are extra-textual. In other words, 98,26% of all questions in the corpus is text-based while 1,73 % of all teacher questioning is text-inspired in all corpus.

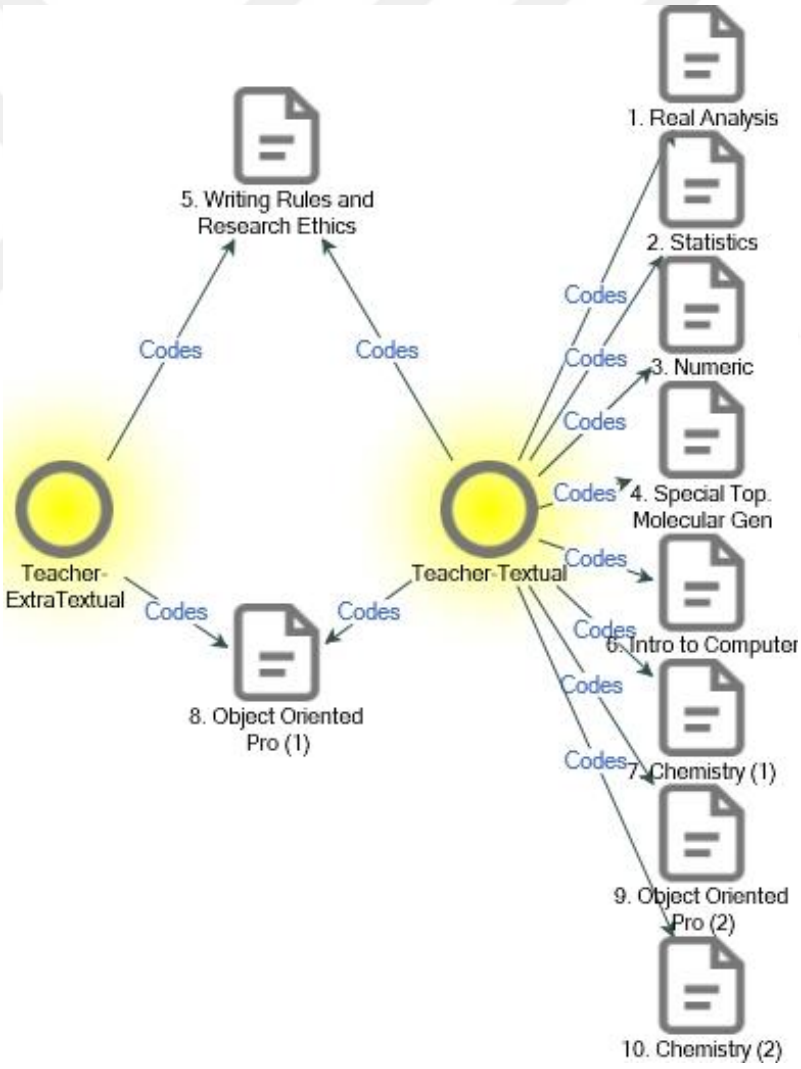

Figure 4. The comparison of textual and extra-textual teacher questions

As it is seen in Figure 4, the relationship between textual and extra-textual question is established in only two courses, Writing Rules and Research Ethics and the first session of Object-Oriented Programming. In other words, only T4 and T6 used both textual ad extra-textual questions in their courses. The other lecturers did not prefer to use extra-textual questions in their courses (Real Analysis, Statistics, Numeric, Special Topics in Molecular Genetics, Introduction to Computer Science Laboratory, both sessions of Chemistry and the second session of Object-Oriented Programming). It is important to underline that while T6 used both extra-textual and textual questions in one session of his course, he only preferred to use textual questions fully in the other session of the same course. In the same way, T4's preferences in his two different courses were not the same. He produced all of his questions textually in Special Topics in Molecular Genetics while he used extra-textual questions as well as textual ones in Writing Rules and Research Ethics.

4.2.1.1. Textual Teacher Questions

One significant feature of textual questions is the fact that they can be in different types and different functions. They may be used as an initiation key of an episode, as a bridge between two sub-topics under discussion or as a facilitative factor to go further in the same topic with various types.

Excerpt 1

A textual teacher question in the type of display question

34	T1	What are the definition? (++) What are the conditions for used to be a metric space?
35	S6	For X [
36	S7	] Distance zero.
37	S6	Yeah, distance.
38	T1	Yes, the important thing is that. There must be a function, ok?

Excerpt 1 was taken from Real Analysis course of T1. In this part, T1 reviews the previous course for bridging with the new topic. After he revises the main

framework of the topic, he requires the students to remind the ‘required conditions for a metric space’ which was taught before. The question is text-based as the teacher does not urge students to produce a complex cognitive respond or to go beyond the topic and to create a new perspective on the topic. In the example, the teacher corrects his grammatical error immediately after two seconds and asks his question in a more correct grammatical description. There are two respondent students in the episode, one of which produces an uptake and corrects the first respondent by overlapping in turn 36. The teacher accepts the answer as correct.

Excerpt 2

A text-based teacher question in procedural form and clarification request

520	T6	Any other question so far? ((a student raises hand)) Yes?
521	S27	Is the const belong to object or variable?
522	T6	You mean this const? ((the teacher shows it on the presentation slide))
523	S27	Yes.
524	T6	Of course, it is for the object. When I say bank account A1 when I say A1, get dollars, ok? When I say this, I am talking about this object. I am saying that it gets dollars will not change this object. Is this what you are talking about? What was your question again is it about the object or what?
525	S27	Variable. I mean [
526	T6	] What do you mean variable?
527	S27	Maybe I am sending three variables in a function. [
528	T6	] Well I mean that case it would be this. A1. F is anything's parameter. When you say const, this const means it will not change this one.

Excerpt 2 presents two teacher text-based questions in the form of two different types of teacher questions. It was taken from Object-Oriented Programming course delivered by T6. It is important to state for this session that T6 uses a method of his own that he requests three or more students for asking a question to the teacher every session. The students must be ready for this activity every week. This weekly assignment creates a pretty intense interaction between the students and the teacher.

The episode given in the example is all based on the text on the agenda of the lecturer. In turn 520, a teacher text-based question is used for ending up a topic in the form of a procedural question. Regardless of the stated classroom activity that T6 assigns every week, S27 would like to ask a question about the text reflected on the board in turn 521. T6 uses a clarification request which is exactly text-based in turn 522. The same student answers with uptake in turn 523. T6 responds with a longer explanation, yet he disappears in the answer and would like to hear the question again which may be a request for a redefinition in turn 524. So, he uses a second clarification request. While the student is redefining the question, T6 overlaps the student and uses a text-based clarification request again in turn 526. The clarification requests in turns 522, 524, 526 have a bridge with the preceding utterance which increases the contingency of the interaction. In the last two turns, 527 and 528, there is again an uptake of the same student and an immediate, overlapping answer of the lecturer.

Excerpt 3

A text-based teacher question in the form of an authentic question

42	T1	Let's see, let me give some example of metric spaces. Ok, you can give some of them, metric space? (+++). Ne var mesela? [Tr. What can it be for example?] Can you give me an example of a metric space?
43	S5	Norm [inaudible].
44	T1	Hı? ((meaning "what?"))
45	S5	Norm.
46	T1	Ok. I will ask what is norm is? In general, it is difficult to give examples of metric spaces using norm.

The example demonstrated in Excerpt 3 presents a text-based teacher question in the type of an authentic question. The excerpt was extracted from Real Analysis course delivered by T1. In turn 42, the teacher uses an authentic text-based question to see whether the students exemplify the taught content, which requires a high-level cognitive ability. S5 responds timidly as she has anxiety about the answer being wrong so the student speaks pretty quietly in turn 43 and the rest of the response has emerged as inaudible data. The teacher uses a clarification request on the same text

with a short exclamation. The uptake of the student is very reduced which disapproves the expectation of text-based questions resulting in longer and more lengthy follow-up as it is an EMI context. This follow up is unexpected for the lecturer as it is beyond the expectation. So, the teacher makes confirmation with an authentic question.

It is necessary to see extra-textual teacher questions to infer about whether the scope of the questions has an effect on the length or complexity of the interaction between teacher and student and how it affects student talk.

4.2.1.2. Extra-textual Teacher Questions

As it was reported before, extra-textual teacher questions compose of 1,73% of all utterances in the corpus. The extra-textual questions can be in authentic, display, clarification or procedural question forms like textual questions or with different functions and natures of questions. Yet, there are only 9 teacher questions produced by text inspiration. 1 out of 9 of these questions was used by T4 in Writing Rules and Research Ethics delivered to students of master program (see Excerpt 4).

Excerpt 4

An extra-textual teacher question in the type of authentic question

265	T4	So can you think of an ethical dilemma related with individual and social values. You do it, it is very good yes, but how are you going to affect the individual? One of that is for instance (++) is there an example from the class? (++) Ethical situation. For example ((Student 48 hands up)) Yes?
266	S48	The guy from (++) China who invented the cure (+++) [inaudible] by trying on the babies.
267	T4	Ha ok. (++) Yes. For example. Yes. What you are referring to is the following experiment.

In the example of Excerpt 4, the lecturer talks about the ethical issues and ethical dilemmas that people in every field. He gives a wide variety of examples

from different fields to help the students better understand the topic. He asks a text-inspired question in the authentic form and requires the students to give their examples. One of the class members manages this high-level cognitive ability requiring process and gives a response exactly as desired. To generalise the fact that extra-textual teacher questions are followed up by longer and more lengthy student response in the corpus of this study, it is beneficial to see the other extra-textual questions in the other question types.

Excerpt 5

An extra-textual teacher question in the type of display question

196	T6	You may say that I am going to modify that parameter, then don't use constantly that case. Ok? What is the (+) ok, make anything constant, make anything private, try to restrict your customer. By customer you know what I mean. Try to restrict your customer so that he or she doesn't make any bad mistake. (++) And who is your biggest customer?
197	Ss	[inaudible].
198	T6	So that's good. (++) Ok. I wasn't expect that. Yes, good. Ok. So, let's go back.

Excerpt 5 demonstrates a teacher extra-textual question. The question is also a display question. The excerpt was taken from the second session of Object-Oriented Programming delivered by T6. While the teacher is talking about the topic on his agenda, suddenly he requires the students to remember a knowledge taught before or he checks a knowledge if students have read or heard about it. The teacher opens a new scope with this extra-textual question in turn 196. Yet, the question has no contingency which I will discuss in one of the coming topics as it is the initiation of interaction. It must be at least the third turn of an episode for being contingent. The only feature of this extra-textual question is being in the form of the display as its response is known by the teacher beforehand. A few of the students give a response which has resulted in confusion and inaudible utterance. As the example shows, extra-textual questions do not result in longer and more complex responses all the time in the corpus of this study.

Extra-textual teacher questions may emerge as a natural consequence of the flow of the turns. In other words, most of the time the lecturer T6 asked an extra-textual question to create an interaction in classroom discourse to enhance better student learning. Additionally, some student-initiated extra-textual episode urged the teacher to ask a text-inspired question.

Excerpt 6

An extra-textual episode initiated by a student

271	T6	I could call any of these for nonconstant objects. I could call any of these but for constant objects, I could call only this one, this one, this one and this one and nothing else. Right?
272	S42	Sir? Is that notation any good? (++) Having two bank account variables for constant and nonconstant?
273	T6	I don't understand your. I mean this is not good because I am defining them in the same line?
274	S42	No no no, that's not what mean. One is constant, the other one is no constant but we are [
275	T6	No no no both of them are constant. A1 is constant and A2 is constant.
276	S42	No no that's not what I am saying. A1 and A2 is constant but there is MC1 and MC2. They are constants.
277	T6	They are not constant yes.
278	S42	We look like we are repeating ourselves but by not using both of them constant.
279	T6	Well (++) I mean what is wrong with saying I have an integer. I could change this value whenever I like. But I have I need another integer. Its name is [inaudible] and its value is 10 and nobody is going to change. Can you ask the same question here too? This is what I am doing exactly. I don't know what you are saying by here. but you are [inaudible] something.

Excerpt 6 (continued)

An extra-textual episode initiated by a student

280	S42	Ok than, now you wrote it, my question doesn't make any sense anymore. Yes.

The episode in Excerpt 6 is extra-textual. During the teaching of the content subject on the lecturer's agenda, the student gets inspired by the content and asks an extra-textual question in turn 272. This is an IRF interaction exceptionally which is started by a student. As a natural result of the extra-textual question of the student, the lecturer uses a clarification request which is text-inspired as well in turn 273. The question is not in the interrogative form but it is understood by the intonation of the lecturer which is a benefit of observation technique. The reason why I have accepted it as extra-textual is that it is out of the content subject on the lecturer's agenda and is produced suddenly by a class member. As it is seen in the flow of interaction the student has the ability for self-expression to some extent and produces uptake to redefine the question in 274 and 276. By turn 272, it is possible to see the typical IRF episode. The initiation and the ending of the episode are realized by the student, which gives the inference that the lecturer does not aim to retain the authority all the time. The fact that the teacher tries to persuade the student and to clear the problem of the student supports this idea.

4.2.2. Typology of Teacher Questions

One of the main focuses of the study is the distribution of teacher questioning in terms of typology, namely authentic questions, display questions, clarification requests and procedural questions under the light of the first research question. During the analysis of questions by these four categorizations, there may be transitions across the types depending on both its nature of classroom discourse and on EMI context. The differentiation of the categories can be more challenging when it is compared to language classroom settings. Before the detailed analysis, it would be useful to have a look at the quantification of the analysis to have a deeper understanding of the distribution of the questions.

Table 7.

The overall distribution of four question types in total utterances in the corpus

Question Types	Number of questions	Percentage (%) in total (11,371) utterances
Display questions	250	2,19
Procedural questions	122	1,07
Clarification requests	97	0,85
Authentic question	51	0,44
Total	**520**	**0,45**

There are 520 questions in total according to the typology of questions in the corpus. To explain in detail, 520 teacher utterances out of 11.371 utterances in all courses are composed of authentic, display, clarification request, and procedural questions of the participant lecturers. As it is reported in Table 7, the most frequent used question type among the total utterances is display question with the percentage of 2,19%, then procedural question type follows it as the second most frequently used question type with the percentage of 1,07%. Clarification request has a percentage of 0,85% and is ranked as the third most frequently used question type. The least frequent teacher question in the EMI corpus of this study is authentic question with a percentage of 0,44 %.

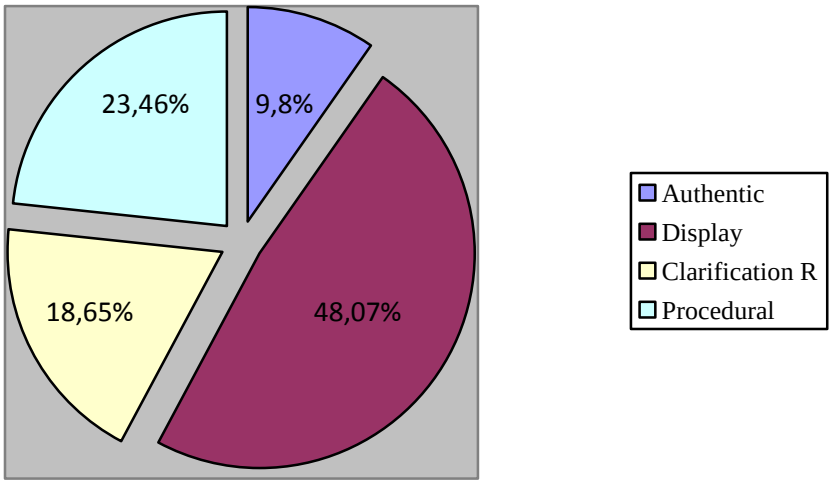

Figure 5. The distribution of question types compared in their typology in the corpus

Figure 5 gives the distribution of four question types in all questions based on the typology. Display question has a percentage of 48,07% of all four question types which means almost half of all the questions. The percentage of procedural question is beyond the expectations as it has a percentage of 23,46% as the second most frequent ones. Clarification request has a percentage of 18,65% and authentic question is composed of 9,80% of all questions. Authentic question is ranked at the bottom of the line as the least frequently used teacher question type in teacher questioning in EMI classrooms typologically.

4.2.2.1. Authentic Teacher Questions

Authentic questions are accepted as quite hard to ask and to find respond. This question type is also found rare in the research studies. The data of the corpus in the present study supports this fact. Authentic teacher distribution is at the bottom of the ranking. As it was reported before it has a percentage of 9,8% among the four questions typologically. Before looking at the lecturers' way of using authentic questions during the courses, it is assumed as necessary to investigate whether there is a difference in the distribution of the authentic teacher questions depending on the type of the courses.

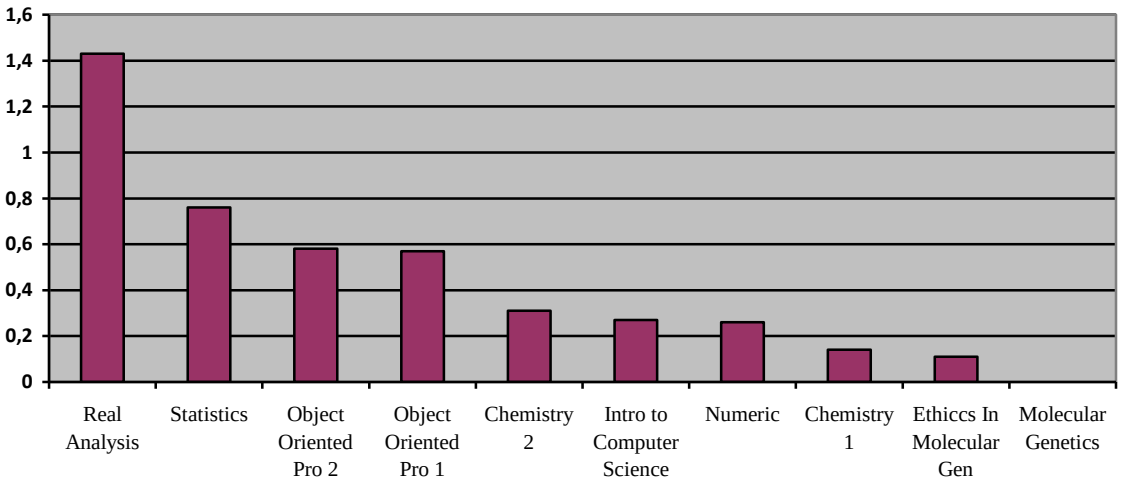

Figure 6. The distribution of authentic teacher question over courses

When the distribution of authentic questions over the courses in Figure 6 is examined, it is apparent that it was most frequently produced in Real Analysis course which is a mathematical course. The second most frequent use of the authentic question was in Statistics course and thirdly it was used most frequently in Object-Oriented Programming, session 2. The use of authentic question in Real Analysis session is 1,43%, its use in Statistics is 0,76%, and it is 0,5 % in the second session of the Object-Oriented Programming course. It has a percentage of 0,57% in the first session of Object-Oriented Programming course with the fourth line in ranking and 0,31% in the second session of Chemistry with its fifth rank. It has a percentage of 0,27% in Introduction to Computer Science Laboratory, 0,26% in one of three mathematical courses, namely Numeric; 0,14% in the first session of Chemistry, 0,11% in Writing Rules and Research Ethics and 0,00% in the Special Topics in Molecular Genetics which means that the lecturer of the course did not use any authentic question during the session. The type of courses did not make a difference in the use of authentic questions. As there are both mathematical and psychical sciences courses both in the first three and the last lines in the ranking. It will be useful to look for the differences by the lecturers.

Table 8.

The relationship between the lecturers' experiences and their use of authentic question

Lecturers	Number of experience years	Percentage of authentic questions (%)
T1	11-15	**1,43**
T2	11-15	**0,76**
T3	11-15	0,26
T4	16-20	0,00 (1)
		0,11 (2)
T5	16-20	0,27
T6	16-20	0,57 (1)
		0,58 (2)
T7	1-5	0,14 (1)
		0,31 (2)

T1 who delivered the Real Analysis course was the one using authentic questions most frequently. This course is a mathematical one and it was expected to have a rank after the courses of psychical sciences. In other words, the researcher expected to observe mathematical courses in the first rank with their display questions. As it is seen in Table 8, T1 has 11-15 year experience. It is not the longest experience year when it is compared with the experience years of other lecturers. T5 is one of the most experienced teachers but he is at the seventh rank in the line meaning he is one of the least frequent users of authentic questions. T4 is also one of the most experienced teachers. In his courses, Special Topics in Molecular Genetics and Writing Rules and Research Ethics, he used presentations as assistive material, exemplified the topic on his agenda variously. Yet, the lecturer preferred to use less or no authentic questions in his course and he is in the last places with his courses. As a result, it is obvious that the experience years of the lecturers do not affect the preference of the authentic questions.

Excerpt 7

The first example of authentic teacher question

46	T1	What does another example?
47	S8	Square.
48	T1	Hı? ((he cannot hear and shows his ear))
49	S8	Can we say square?
50	T1	Square?
51	S8	For d, p q equals $p+p^2$.
52	T1	$P+p^2$. It will not satisfy probably the third one.
53	S8	Why not?
54	T1	No no, it is satisfying but you must write p - [
55	S8	] p - [
56	T1	] you must write p-q square. Ok, but (++) let's take another example.

Authentic teacher questions were mostly used to see any exemplification from the students or to talk about the topic on the lecturer's agenda but out of context. In Excerpt 7, there is an example of the first category of authentic teacher question. The

excerpt was taken from Real Analysis course delivered by T1. The lecturer talks about *metric space* and gives a lot of examples about this topic. In the final step, he would like to see whether the students have understood and internalised the topic or not. The question in turn 46 may seem like a display question with the defence that the lecturer already knows an example about the topic. Yet, the lecturer intends to see whether the students have reached the level of exemplifying the topic beyond having theoretical knowledge. In turn 48, the lecturer uses clarification request emerged due to the low voice of the student. The student redefines the response in a longer and louder form in turn 49. In turn 50, the lecturer uses revoicing. The student handles with this question and explains the answer in turn 51 but the lecturer reports the dissatisfaction with the answer in turn 52. There is a clear IRF chain in the excerpt. As it is seen in the example, the turns of the student are quite satisfactory. The student continues holding the floor and uses a clarification request in turn 53. This excerpt is one of the proofs that authentic questions promote classroom discussion.

Excerpt 8

An example of authentic question used out of context

411	T6	Did you study this one? Anybody try to write this something similar like this, compile it?
412	S48	((he raises hand))
413	T6	Did you do that?
414	S48	((he shakes his head))
415	T6	Ok. So, what was the (++) what was the first mistake that you have realized? Don’t tell that you didn't make any mistakes. I don't believe that.
416	S48	I forgot the right name spaces.
417	T6	So than? Everybody does that.
418	S48	Yes.
419	T6	That’s not, that's not something unique.
420	S48	I forgot how [
421	T6	] Tell me something original, an original mistake.

Excerpt 8 (continued)

An example of authentic question used out of context

422	S48	I forgot how to use, (++) to use private functions inside public.
423	T6	You would. You would. Hah ok. So, you forgot how to call a public function inside a, how to call a private function inside a public?
424	S48	Yes.
425	T6	So, it is as simple as just calling it, right?
426	S48	Yes.
427	T6	That's what I'm saying. If you write it yourself, if you write it yourself, you will realize that the things that seem very simple to you are not that simple actually.

Excerpt 8 represents the second form of authentic question used by the lecturers. In the example, the authentic question is used about the topic under discussion but out of context. With more detail, in the initiation of the episode (turn 411) the lecturer asks whether the students have tried to practice the topic at their home which is an authentic question. A member of the class (S48) raises hand meaning that he did it. In turn 413, the lecturer uses a confirmation check and the student approves the question in turn 414. In turn 415, the lecturer uses another authentic question which is more specific to the newly opened scope and bridges with the previous authentic question at the same time. After the response of the student in turn 416, the lecturer asks an authentic question again to the student to expand the topic in turn 417. Yet, the lecturer does not obtain a satisfactory answer and redefines his question in turn 419 in an affirmative form but with a questioning intonation. The questioning in turn 417, 419 and the insist of teacher seems to be necessary when the answer of the student in turn 422 is examined. It is also worth to say that these two questions urge the student to use his language speaking skill at the highest level. Because the response in turn 416 is unsatisfactory to the lecturer and the response in 422 makes the lecturer understand the problem better.

Excerpt 9

An example of authentic question converted from display question

114	T1	Tamam şimdi bir şekilde elimizdeki şeyi buna çevirebilir miyiz? [Tr. Ok now can we somehow turn what we have to this?] (++) Nasıl kullanabiliriz var mı bir fikriniz? [Tr. Do you have any idea about how we can use it?] (++++++++++++++). Şimdi [Tr. Now] [
115	S11	] P oluşturur [Tr. P creates] [
116	T1	] Şurada şeyi de belirteyim, yazmadık ama; q, p dışında bir eleman. [Tr. Let me state the thing here, we did not write but, q is an element other than p.]
117	S11	NRP intersection E closure. We can write E closure as a union.
118	T1	Yeah, yes exactly.
119	S11	Of E and P prime and if we use [inaudible], maybe we can put.
120	T1	Yes, we will use another, similar to this one.

The lecturers can make a transition from display question to authentic question to broaden the scope. In Excerpt 9, T1 uses a display question first, then he immediately changes his mind and decides to ask an authentic question which means that the scope of the questioning has totally changed. Because with the first question in turn 114, it is apparent that the lecturer knows the response whether there is a possibility to turn the mathematical operation. Yet, he changes the type of question as he would like to see the opinions of the students about how to use the operation. In other words, the lecturer would like to see to what extent the students comprehend the topic. So, the second immediate question in turn 114 was labelled as authentic. Then he waits 13 seconds which is much longer than typical extended wait time. After waiting, he determines to answer his own question. One of the class members overlaps the lecturer and gives a response which is a demonstration of doubtfulness in turn 115. The lecturer also overlaps the student talk to contribute his previous question to ease finding a response in turn 116. He also evaluates the student response as a part of typical IRE. As it is obvious in the example, there is also use of mother tongue in classroom discourse. It is assumed not to be a codeswitching as a strategy to compensate the insufficiency in language but as habitual behaviour. It is

also worth to say that the student adheres to the language of the medium of instruction.

Excerpt 10

An authentic question about a language-related problem

485	T7	We have one bird. ok bird. Serçe [Tr. Sparrow]. What is the English of the serçe [Tr. sparrow]?
486	S58	Sparrow ((/*spʌ*roʊ/)).
487	T7	Sparrow ((/*spʌ*roʊ/))?
488	S58	Sparrow ((/*spe*roʊ/))
489	T7	Ok. Let's assume it is it weighs thirty grams. It weighs thirty grams. ((he starts to write)) More or less right? Ok, very light. Ok. Let's say flies to (++) ten meters of height from ground. (++) How many grams of glucose it has to burn?

The example in Excerpt 10 is only one different use of authentic question in the corpus. The question is a language-related authentic question and the lecturer does not know or he has forgotten about the English of the vocabulary in turn 485. The lecturer would like to give an example for the burn of glucose and prefers a bird as an example but he would like to use sparrow specifically due to its size. In turn 486, the student gives response but he mispronounces the word. The lecturer uses a revoicing to check the word with the same mispronunciation. Yet, in this turn, the question is not about the pronunciation but it has emerged as the lecturer did not hear clearly. Because he walks toward the student and turns his ear to him at this point. By the way, the student corrects his pronunciation. This time the lecturer gives up to use the word and goes on talking about the rest of the example.

4.2.2.2. Display Questions

Display questions were observed as almost five times more than authentic questions in the corpus. Display questions are generally believed to limit the answers of the students and to hinder their output. This is the primary reason why display questions are sought after the authentic questions as authentic questions are thought

to lead to longer and more immense interaction in the classroom environment. The percentage of display questions in four types of questions from the typologic perspective is 48,07% which means that display questions constitute almost half of the questions in the courses. Before the analysis of the use in classroom discourse for this question type, it will provide a piece of better knowledge to see the quantification analysis of it.

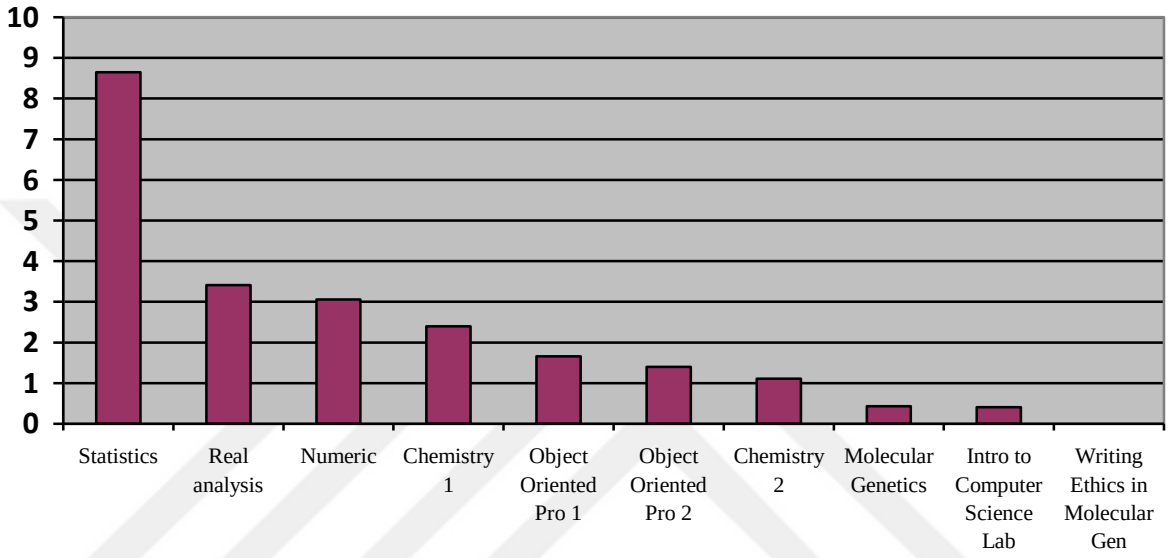

Figure 7. The distribution of display questions over the courses

Figure 7 demonstrates that display question is most frequently used in Statistics, Real Analysis, and Numeric, all of which are mathematical courses. The use of display question at these courses is has a percentage of 3,41%, 8,6%, 3,06% respectively. The lecturer of Research and Writing Ethics in Molecular Genetics course does not use questions during teaching broadly. As a result, the display question was not found in this course. There are two courses in the corpus which were observed in different two sessions and different days, namely Object-Oriented Programming and Chemistry. While the distribution and the types of the questions are approximately similar in both sessions of Object-Oriented Programming course, this is not the case for Chemistry course. When it is examined specifically for the example of display questions, the first session of Chemistry is at the fourth rank in use of display questions by the lecturer (T7) but the second session of the course delivered by the same lecturer is at the seventh

rank. The reason for this situation is the intensity of the curriculum and the lecturer announced that he would speed up.

Table 9.

The distribution of display question used by the lecturers

Lecturers	Number of experience years	Percentage of display questions (%)
T2	11-15	**8,6**
T1	11-15	**3,41**
T3	11-15	**3,06**
T7	1-5	2,40 (1) 1,11 (2)
T6	16-20	1,66 (1) 1, 40 (2)
T4	16-20	0,43 (1) 0,00 (2)
T5	16-20	0,41

As it can be inferred from Table 9, the most experienced lecturers did not prefer to use display questions. To exemplify the situation, T6 is one of the lecturers that created interaction mostly during the courses. As it is stated before the lecturer has his method by which the students ask previously prepared questions to the lecturer, so longer interactions are produced by class members. Yet, the lecturer was one of those choosing to use fewer display questions. T4 and T5 are the lecturers who did not prefer using questions generally. T7 tried to catch up with the curriculum especially in the second session of Chemistry course, so rather than the lecturer the students used questions during the courses.

It is assumed as necessary to present a comparison between authentic and display questions, which is one of the most desired comparisons in the field.

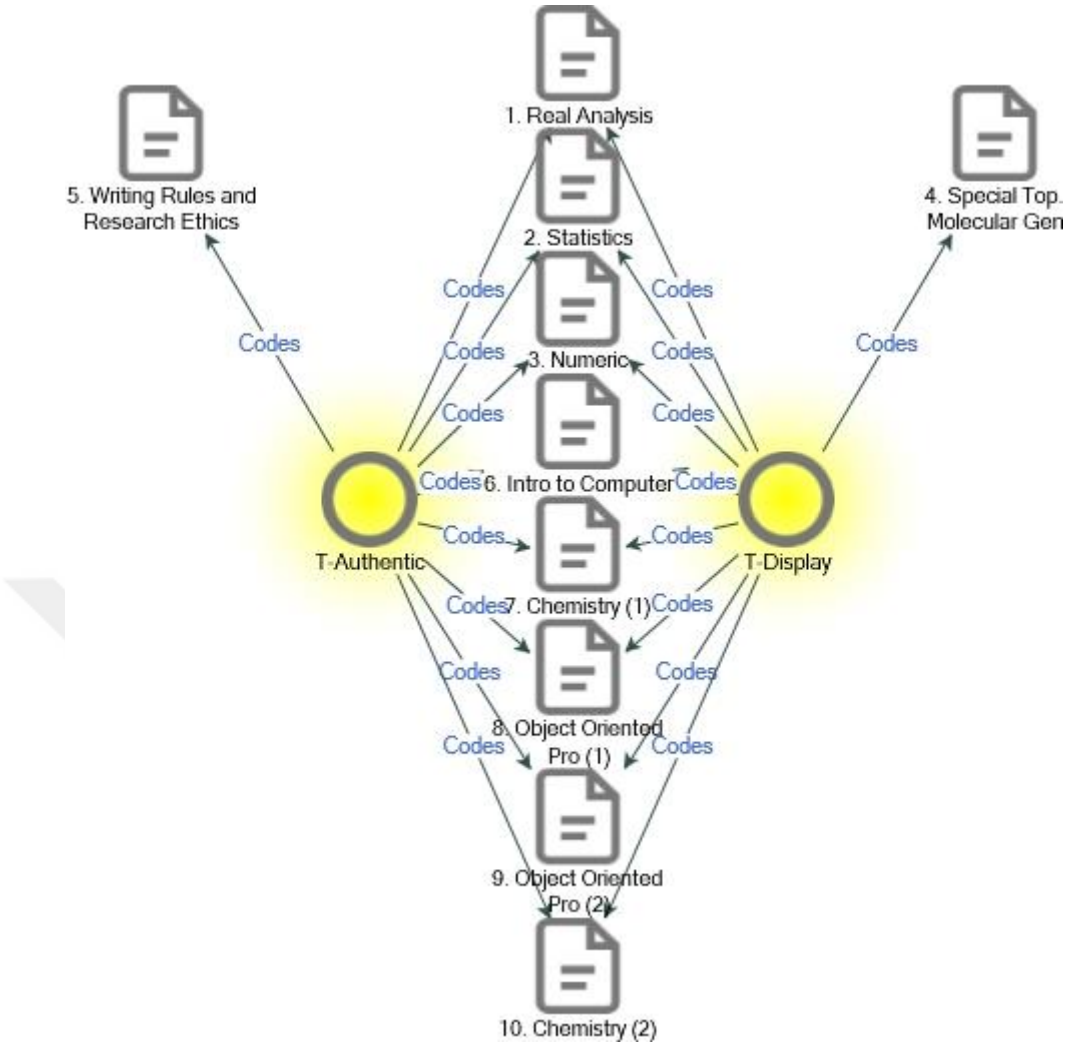

Figure 8. The comparison of authentic and display questions

As it is clear in Figure 8, the different points of authentic and display questions are Special Topics in Molecular Genetics and Writing Rules and Research Ethics courses. It is an important point that the same lecturer (T4) delivered these two different courses. While T4 preferred not to use any authentic question in Special Topics in Molecular Genetics course, he preferred not to use display question in Writing Rules and Research Ethics course. It should be reported that the amount of total questions in these two courses is quite low as stated before. A closer look at the implementation of the courses will give a better and deeper understanding of display questions.

Excerpt 11

A display question the answer of which is already known by the lecturer

412	T7	What is this process called?
413	S61	Condensation.
414	T7	Look into my chart.
415	S61	Condensation
416	T7	Condensation. Ok. What is delta condensation? What is the value? Can you guess?
415	S61	Minus.
416	S62	Minus forty-four.
417	T7	Minus forty-four kilojoules. Why? It is just reverse of the other reaction.

In Excerpt 11, there is an example of a typical display question. The lecturer already knows the answer. In turn 412, the lecturer initiates the interaction with a display question and in turn 416 he continues to incorporate the interaction with another display question which increases the length of the interaction. It is important to note that another class member holds the floor in turn 416 and makes a peer repairment for the response of the student (S61) who is already in interaction with the lecturer. The lecturer evaluates the response of the student with a revoicing and ends the interaction.

Excerpt 12

The use of display question as a yes-no question

428	T6	Do I have to permission to go into double class and make a modification?
429	S43	No.
430	T6	No. Double class [inaudible] in like seventy-four and nobody is allowed to change. So how am I gonna do this? I am going to do this may be using what?
431	S43	Global.
432	T6	Global, yeah. Unfortunately. With the global (++) with the global, this will take on the left side.

Another typical use of display questions is in the form of a yes-no question. But there are two types of this form in the corpus. The lecturers used display questions like a yes-no question either they really would like to hear the answer or as a strategy to fill the time while they are engaged in other work. Excerpts 12 and 13 are about these uses of display questions. In Excerpt 12, the lecturer uses a display question in turn 428 as he wonders about the answer of the students. The lecturer knows the answer and he would like the students to represent their knowledge. The response given by the student in turn 429 is approved by the lecturer as it is understood from his revoicing and scaffolding with his extra explanation for the answer given by the student. After the evaluation of the lecturer, he uses another display question in turn 430 with the previous function of display question as it was represented in Excerpt 11. The same student incorporates with the interaction and gives the correct answer again.

Excerpt 13

A display question as a gap-filler

402	T6	For better let me write this, double. Would this work?
403	S125	No.
404	T6	For these two works, I have to overload the plus operator. So, let it take two parameters.

In Excerpt 13, the lecturer uses display question while he tries to write a code on his computer which was reflected on the board. The lecturer is not much volunteer to ask this question or to see the knowledge of the student because while asking the question, he is engaged in something and does not look at the classroom member who answers. The student in turn 403 answers but the lecturer does not give or imply any evaluation. So this type of display question is assumed as a gap filler to compensate the silence in the classroom.

Excerpt 14

A display question in longer interactions

126	T2	In one trial (++) in one trial this is 1-X. In one trial,

Excerpt 14 (continued)

A display question in longer interactions

		this is 1-X. So, what can it be in N trial?
127	S14	N-X.
128	S15	1-X.
129	T2	In one trial, in one trial it is 1-X, in N trial it is N-X, ok? (++) And the range is how many success can it be? How many success (+++) can it be 0, hı?
130	S15	Yes.
131	T2	Yes, of course. Can it be 1?
132	S14	Yes.
133	T2	And 2?
134	Ss	N.
135	T2	N. We have maximum of N success. We have minimum 0 success in N independent trial.

There may be exceptions for display questions which are generally accepted as the questions the response to which is short or only yes-no answer. It is possible to see the use of display questions as a facilitator to create a longer and complex interaction between student and teacher. In Excerpt 14, the lecturer initiates the episode with a display question related to a mathematical problem. Two students are volunteer to response the question with different answers in turns 127 and 128. After scaffolding, the lecturer continues the interaction with another display question in turn 129. He uses display question to enhance longer interaction in turns 131 and 133. The students hold the floor successfully. In this classical IRE episode, the lecturer uses display questions to create a longer interaction as a result of the intention to check whether the students understand the content or not. This example is proof of the fact that display questions can be used for longer interactions between teacher and student in EMI classrooms.

Excerpt 15

An example of a display question in the role of scaffolding

306	T4	What does it do, spectrometer?

Excerpt 15 (continued)

An example of a display question in the role of scaffolding

307	S43	There is [
308	S44	] It gives information about protein structure or protein-protein interaction.
309	T4	It may give information about the interaction. Yes. (++) But what it does technically? What is spectrometer?
310	S44	Protein isolate, isolated protein from cell.
311	T4	Right.
312	S44	Than (++) digest.
313	T4	Ok.
314	S44	Trips.
315	T4	Trips or trips nice, by trips you can digest.
316	S44	Than load.
317	T4	Yeah, you load it to a machine.
318	S44	Yes.
319	T4	And that yes, the machine analyses it how?
320	S44	Pits.
321	T4	Ok. It gives you pits but what are these pits [inaudible]?
322	S44	Amino acid composition.
323	T4	Amino acid composition of the molecules that you insert to be analysis. Is there any nuance that you comment? How does spectrometer work? (+++) So, in this context basically, yeah it works like that but let me explain it another way.

In Excerpt 15, there is a display question in the initiation of the episode. The excerpt was taken from Special Topics in Molecular Genetics course and the episode is about a machine that is used in the field. The lecturer is questioning how it works. In turn 307, the student starts to give response yet he is overlapped by another class member. In turn 309, the lecturer scaffolds the student but shows that he seeks the correct answer. It is typical to this course that the lecturer usually uses display questions after scaffolding or revoicing. In turns 319 and 321, the lecturer uses a display question after a revoicing and scaffolding again. At the end

of the interaction, the lecturer gives corrective feedback supportively and he starts to give the correct response. It is obvious that the use of display questions by the lecturer insistently after evaluative follow-ups enables the student to manage the participation in the interaction.

4.2.2.3. Clarification Request

Clarification request is one of the observed question types in the present study. This question type is mostly used to repair when there is a partial or total failure in the communication. The other most frequent function of the clarification request is to request a further explanation in the scope to make the topic under discussion more understandable. Before a closer look at the use of clarification requests by the lecturers, it will be beneficial to see the distribution over the courses and by the lecturers.

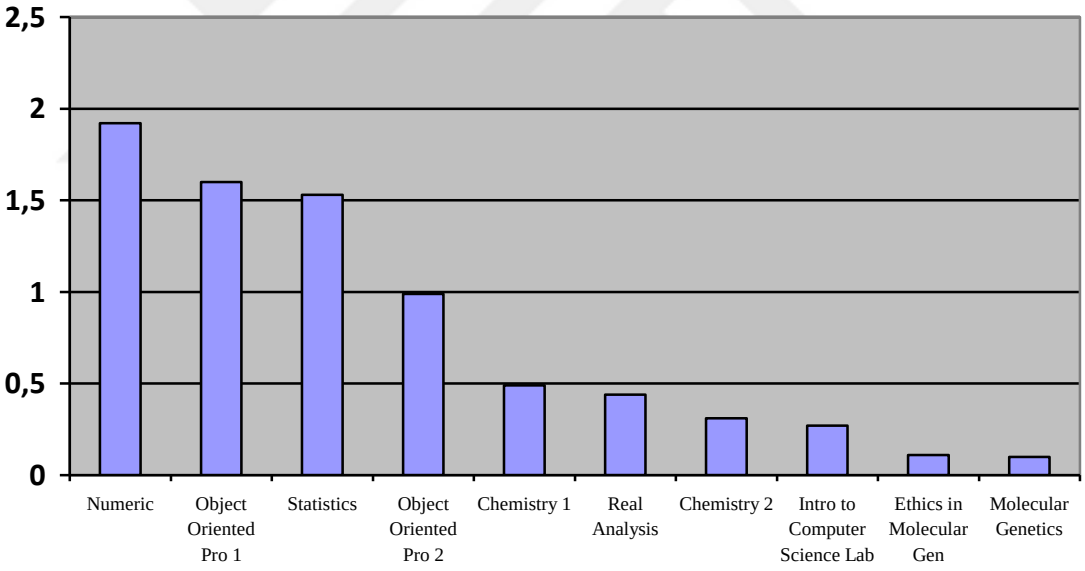

Figure 9. The distribution of clarification request over the courses

As it is presented in Figure 9, the clarification request is most frequently used in Numeric course with a percentage of 1,92%. It was stated previously that the distribution of display questions in both two sessions of Object-Oriented Programming course are similar to each other. Yet, the first session of the course is at 1,60% while the second session of the course is at 0,99% in the use of

clarification request. Two sessions demonstrated a difference in the distribution of this question type. In the third raw, there is a mathematical course. In mathematical courses, solving a problem took quite a long time and the lecturers used display questions and clarification requests frequently in their interaction with students. They requested the students to solve the problem step by step altogether. The least frequent use of clarification request is in Special Topics in Molecular Genetics course with the percentage of 0,10%. Because the lecturer of this course preferred to use fewer questions than the other lecturers.

Table 10.

The distribution of clarification requests by the lecturers

Lecturers	Number of experience years	Percentage of clarification request (%)
T3	11-15	**1,92**
T6	16-20	**1,60** (1) 0,99 (2)
T2	11-15	**1,53**
T1	11-15	0,44
T7	1-5	0,49 (1) 0,31 (2)
T5	16-20	0,27
T4	16-20	0,10 (1) 0,11 (2)

As it is examined in Table 10, T3 is the one who used clarification request at the highest level with a percentage of 1,92 %. He is not one of the most experienced teachers. T6 is the second one who used the clarification request most frequently at 1,60 %. Yet, he is one of the most experienced teachers. T2 is the third lecturer in the frequency of clarification request use with the percentage of 1,53%. As it is seen from the first three teachers, use of clarification request is not dependable on the

experience years of the teachers. To see the usage context of clarification request and the reason why and when it is used by the lecturers can give a more detailed answer.

Excerpt 16

The typical example of the clarification request

406	T6	Any other question so far? Yes?
407	S32	Is the const belong to object or variable?
408	T6	You mean this const?
409	S32	Yes.
409	T6	Of course, it is for the object. When I say bank account A1 when I say A1, get dollars, ok? When I say this, I am talking about this object. I am saying that it is "get dollars" will not change this object. Is this what you are talking about? What was your question again? Is it about the object or what?
410	S32	Variable. I mean [
411	T6	] What do you mean variable?
412	S32	Maybe I am sending three variables in a function [
413	T6	] Well I mean that case it would be this. (++) A1.

Excerpt 16 reflects a typical use of clarification request which is emerged due to not understanding the utterance of the speaker semantically. In turn 407, the student asks a question to the lecturer and the lecturer uses a clarification request in turn 408 by addressing the point on the board. In 409, the lecturer gives a response to the student yet he needs to make sure exactly what the question is about and would like to clarify the issue. So, he uses a clarification request again. The student gives a short answer to this clarification request in turn 410. Thus, the lecturer uses a clarification request again by overlapping in turn 411. The student redefines the question through an example in turn 412 but the lecturer overlaps again and clarifies the issue by demonstrating on the board.

Excerpt 17

A clarification request related to language proficiency of students

216	T2	What was the formula of expected value?
217	S16	Q.
218	T2	What was the formula first?
219	S16	Sum (+++)
220	T2	Hı? You can say it Turkish.
221	S16	[inaudible] X eşittir. [Tr. X equals]
222	T2	This is sum. X times corresponding the probability. Because in (++) we are in discrete case ok?

The episode in Excerpt 17 was extracted from Statistics course delivered by T2. The lecturer uses a display question in the initiation of the episode to start solving a mathematical problem that he wrote on the board with students. The student in turn 217 gives an answer which is the result of the problem but the lecturer would like to hear the formula of the problem first. So, he redefines his display question emphasizing the word "first" in turn 218. The lecturer would like to go on the process step by step for a better understanding of all classroom members. The same student tries to answer the second display question of the lecturer but he cannot find the correct vocabulary. The lecturer realizes it and requests a clarification by Turkish while he keeps on speaking in English in turn 220. The student gives a response in Turkish and the lecturer evaluates it at the end of the interaction. The initiation and the closing of the interaction of this episode like most of the other ones in the Statistics course show that the lecturer is the authority in the classroom. All in all, it is possible to see clarification requests from the lecturer because of the problems with language proficiency of the students and this is a clear example of this situation.

Excerpt 18

A clarification request emerged due to inaudible answer

311	T3	So, in this case, which theorem helps us that there exists a root? Hı?
312	S38	Intermediate.
313	T3	Hı?
314	S38	Intermediate.

Excerpt 18 (continued)

A clarification request emerged due to inaudible answer

315	T3	Yes. If you have these two intermediate value theorems conclude as zero of a function in this interval.

Another use of clarification request was raised from not being able to hear the speaker (Excerpt 18). The lecturer asks a question in the form of display to the student in turn 311. A student gives response but the sound of the student is so low that the lecturer cannot hear him. So he uses a clarification request with an exclamation and a body movement towards the student in turn 313. The student revoices his response and the lecturer hears the response this time and accepts the correctness of the response.

Excerpt 19

A clarification request with teacher modelling

286	T3	What happens when Q is equal to 1? What is restriction on on [inaudible] (+++) What was restriction when Q is equal to 1? So, what if this is 1, what happens in linear convergence case? Remember?
287	S27	Bigger than 1.
288	T3	Hı?
289	S27	Bigger than 1.
290	T3	Bigger than 1?
291	S27	Yes.
292	T3	Or smaller than 1?
293	S27	Smaller.
294	T3	Bigger or smaller?
295	S27	[inaudible] değil mi? [Tr isn’ it?]
296	T3	Check your notes. You will see, come on, check your notes. Linear convergence last week.

Excerpt 19 shows the use of clarification request with teacher modelling. The lecturer initiates the interaction with a display question in turn 286. After the

response of a student, he uses a clarification request with an exclamation as he did not hear the student in turn 288. After he hears the student voice with the same answer, he uses a confirmation check by revoicing the response of the student. The student reveals that he is sure with his response by redefining the same response. The lecturer uses a clarification request by modelling the correct answer in turn 292 and the student repairs his response with the correct one modelled by the lecturer. In turn 294, the lecturer uses a clarification request again by optional this time to see the student's real knowledge and idea about the issue pointed out. The student switches to Turkish, his L1, to clarify the issue as he may think that the confusion was emerged due to the lack of ability in English of his own in turn 295. But, it is revealed by the evaluation of the lecturer that the response is not correct so the lecturer requests him to check his notes.

4.2.2.4. Procedural Questions

One of the question types under investigation is procedural questions in the present study. Procedural questions were the second most used question types after display questions with a total of 122 in all corpus. This question type is used usually for directions and behaviours in the classroom. It is one of the important features of classroom discourse as the classroom environment does not always include interactions about the topic in the curriculum or on the agenda of the teacher. Some unexpected events may occur during the usual flow of teaching and learning process in a natural classroom environment. As a result of these unexpected events, teachers and students may use procedural questions to manage the spontaneous events.

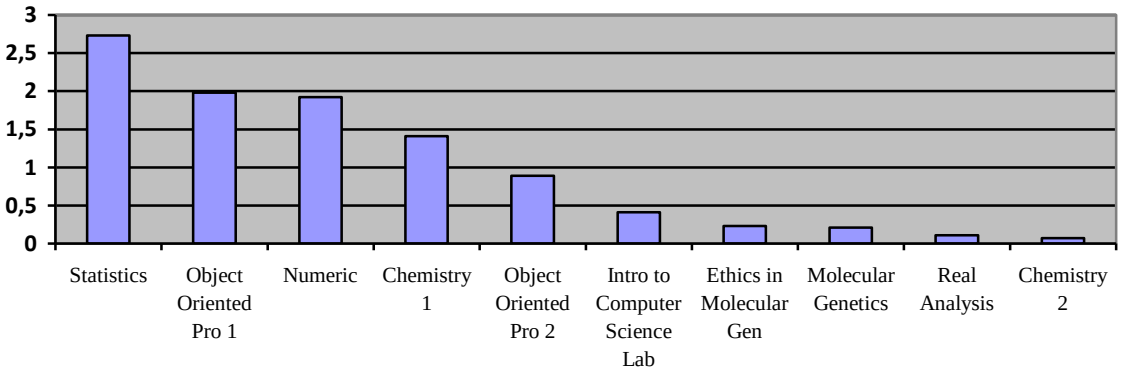

Figure 10. Distribution of procedural questions over courses

Figure 10 shows the distribution of procedural questions across courses. The distribution of this question type is quite different from the others. Statistics course has the highest percentage with 2,73% in the use of procedural questions when it is compared with all utterances in the course. The second and the third courses in which procedural question was used mostly are the first session of Object-Oriented Programming and Numeric courses with 1,98% and 1,92% percentages respectively. The second session of Object-Oriented Programming has a less percentage with 0,89% than the first session. The second session of the Chemistry course has the least percentage with 0,07% while the first session of the course has a ratio of 1,41%.

Table 11.

The distribution of procedural questions according to the lecturers

Lecturers	Number of experience years	Percentage of procedural questions (%)
T2	11-15	**2,73**
T6	16-20	**1,98** (1)
		0,89 (2)
T7	1-5	1,41 (1)
		0,07 (2)
T5	16-20	0,41
T4	16-20	0,21 (1)
		0,23 (2)
T1	11-15	0,11
T3	11-15	**1,92**

As Table 11 demonstrates, there is no difference in the frequency of procedural questions when compared with the experience years of the lecturers. Because one of the most experienced teachers, T6, is at the third raw with its use of procedural questions in one of his sessions while he is at the fifth raw in his other session of the

same course. T2 has the highest percentage among others with his use of procedural questions. It is significant to state that he is the one who creates the longest and the most immense teacher-student interactions during the course. He is in average ranking in terms of his experience years. The type of the courses and the experience years of the lecturers have not much of an impact on the use of the procedural question. It will be better understood with a fine-grained analysis of the use during the course by episodes.

Excerpt 20

The typical use of procedural questions in the corpus

498	T7	Can you see the board? I am writing it here now. ((He points to the bottom of the board))
499	S68	Görebiliyor musunuz? [Tr. Can you see it?]
500	S70	Ben görebiliyorum. [Tr. I can see it.]
501	Ss	Hıhı.
502	T7	Ok.

In Excerpt 20, while the lecturer keeps his usual flow of teaching, he needs to ask students whether they see the bottom of the board. He would like to use that part of the board as the solution to the problem would not be left in different parts of the board. This is one of the examples of procedural questions that are used for the classroom events that spontaneously occur. The student holds the floor and translates the question of the teacher into Turkish, L1 of the majority of the classroom, as the other classroom members do not give any answer to the lecturer in turn 499. Another student gives a response in L1 and then some students give a response with an exclamation meaning ‘yes’.

Excerpt 21

Another example of a typical procedural question

21	T1	Should I erase?
22	S6	Orayı silmeyin. [Tr. Do not erase there.]
23	T1	Ok. I'm erasing this part ok.

Excerpt 21 is another demonstration of the typical use of procedural questions by the lecturers. The lecturer would like to erase the board but he also would like to check if the students have completed their note takings or not. The student (S6) gives a response in her mother tongue and then the lecturer closes the interaction by changing his mind. In this interaction, it is clear that the lecturer would like to adhere to the language politics of the university.

Excerpt 22

Use of procedural questions in mathematical courses

32	T2	Do you have a calculator or something? What is the exact result of this probability? Ayşe, can you help me?
33	S23	Direkt hesaplayayım mı? [Tr. Should I calculate directly?]
34	T2	Yeah, please. Do you have calculator or something? What is the exact result of this probability? Ok, it must be between 0 and 1, please remember, this is probability ok? (++++) Yok mu kimsede calculator? [Tr. Doesn't anyone have a calculator?]
35	S24	Bende. [Tr. I have.]
36	T2	Heh hadi. [Tr. Come on.]
37	S24	İki yüz yirmi beş bölü. [Tr. Two hundred twenty-five divided]
38	T2	Exact result?

One of the most common uses of procedural questions in the corpus is related to the calculation. Especially in mathematical courses, the lecturers would like students to calculate or solve the problem by their calculators or mobile phones. In Excerpt 22, the lecturer asks for a calculator in turn 32. The question may seem like an authentic question but in fact, the lecturer wants students to calculate for the result of the problem on the board so it was coded as a procedural question. First, the lecturer asks the question to all classroom members then he narrows down the audience and asks one of the classroom members. The student gives a response in her L1. The lecturer keeps his speaking in English and uses a procedural question again in turn 34. After he waits for 4 seconds, the lecturer uses a procedural question again to other students and asks for a calculator again. As it is stated before, the lecturer means students to calculate the problem with their calculators while he is asking for a

calculator. Excerpt 23 represents the same situation in which the lecturer would like the students to use their calculators to solve the problem on the board in turn 46. The question may seem like a display question as the lecturer give positive feedback in turn 48 but it is understood from the mimics and gestures from the lecturer that he presumably evaluates the giving response of the student. The question requires the students to be involved in a behavioural activity so the questions about using a calculator are accepted as procedural questions.

Excerpt 23

The second example of procedural questions in mathematical courses

46	T2	Calculate by x over 4?
47	S28	Sıfır kırk sekiz. [Tr. Zero forty-eight.]
48	T2	Yeah.

Excerpt 24

The procedural question specific to Object-Oriented Programming course

396	T6	Ok Zeynep. It is your turn. Ask me a question?
397	S61	I don't have a question.
398	T6	You don't have a question is not a question. Don’t ask the same question. I don't have a question is not a question.
399	S61	Immm (++++)
400	T6	Yeah?
401	S61	I should think.
402	T6	What?
403	S61	Think. I should think. Düşünebilir miyim? [Tr. Can I think?]
404	T6	You are thinking?
405	S61	Yeah.
406	T6	Ok. While you are thinking maybe I should get another question from somebody else.

As stated before, T6 would like the students to ask a question to him at the end of the topic. According to the explanation of T6, he thinks that only when a student focuses on a topic, she/he can ask a question about it. The students come to the

classroom with a question or they decide their questions while listening to the teacher. I coded this request of the lecturer as a procedural question. As it is seen in Excerpt 24, the lecturer chooses a name from the list randomly and requests the student to ask a question to him in turn 396. The student gives a response and states that she has not prepared to ask a question yet. Then, the lecturer intends to turn some other student. Although this situation is specific to this course, it is obvious that this question type can be used as an opening point of longer interactions between teacher and student.

4.2.3. The Contingency of Teacher Questions

Contingent questions are about whether the speaker makes any contribution to previous utterances. It enhances bridging between the topics or opening new doors to the scope. In the analysis for the contingency of teacher questions, there are no criteria for the type of questions. In other words, teacher questions can be contingent in four types of questions, namely authentic, display, clarification request, and procedural question.

Table 12.

The distribution of contingent questions based on typology

Question types	Number of the questions	Number of the contingent questions	The ratio of the contingency (%)
Clarification request	97	73	**75,25**
Display question	250	104	41,60
Procedural question	122	37	30,32
Authentic question	51	13	25,49

According to Table 12, the distribution of the contingency among four basic question types reveals that most than half of the clarification requests are contingent with the highest percentage of 75,25%. The second most contingency ratio belongs to display questions with 41,60%. 30,32% of procedural questions are contingent.

The authentic questions are mostly used as the initiation of scope so the contingency distribution has the least percentage in authentic questions. 25,49% of authentic questions in the corpus are contingent.

Table 13.

The distribution of contingent questions depending on the courses and the lecturers

Sessions	The lecturers	Experience years	Number of total questions	Number of contingent questions	Ratio (%)
Statistics	T2	11-15	125	96	**76,8**
Object-Oriented Programming (1)	T6	16-20	92	49	**53,26**
Chemistry (1)	T7	1-5	63	30	**47,61**
Object-Oriented Programming (2)	T6	16-20	66	30	45,45
Special Topics in Molecular Genetics	T4	16-20	7	3	42,8
Chemistry (2)	T7	1-5	23	9	39,1
Numeric	T3	11-15	82	30	36,5
Real Analysis	T1	11-15	48	15	31,25
Writing Rules and Research Ethics	T4	16-20	4	1	25
Introduction to Computer Science Laboratory	T5	16-20	10	2	20

When it is looked for the distribution of the contingent teacher questions in Table 13, it is obvious that by far the biggest difference is in Statistics course with the percentage of 76,8%. T2 who is the lecturer of the course used 125 questions and more than half of these questions were contingent. The lecturer is an 11-15-year-old experienced teacher. The second most frequent use of contingency belongs to T6 in the first session of Object-Oriented Programming course with 53,26 %. The lecturer has a 16-20-year-old experience in teaching and he developed a method specific to his courses. He gives an assignment including preparation a question to the lecturer.

This method increases the length of the interactions in the classroom and the lecturer use contingency in these interactions. There is a difference between the two sessions of the teacher's same course about contingency. The third most frequent use of contingent questions is in the course of Chemistry with 47,61%. The contingency of the questions used by the lecturer in the second session is less than the first session of Chemistry. The lecturer is the least experienced teacher in the corpus. The least contingent question was observed in Writing Rules and Research Ethics course delivered by T4. The lecturer used 4 questions and only one of them was contingent.

Excerpt 25

The first example of the contingent question

306	T6	Can I do this do you think? Is it possible?
307	Ss	Yes, no.
308	T6	Yes or no?
309	Ss	Yes.
310	T6	What does it mean when I say const? This will not?
311	S28	Change.
312	T6	This will not change what?
313	S28	The value?
314	T6	This will not change the object?
315	S28	Object? Not [inaudible].
316	T6	There is no object.

Contingent questions were used with two different purposes in the corpus. The first purpose was to go deeper into one aspect of the topic. In Excerpt 25, the lecturer uses a display question about an operation on the board reflected from the laptop of the lecturer (T6). The students give a response altogether with two different options in turn 307 and the lecturer scaffolds with a contingent clarification request in turn 308. After the response of the students, the lecturer would like to ensure the knowledge of the students and uses a contingent display question related to the same topic under discussion in turn 310. According to the response of the student, the lecturer shapes his questions and prefers using contingency of the questions in turns 312 and 314 to clarify the confusion.

Excerpt 26

The second example of contingent question

456	T7	How many numbers of total motions? How many atoms are there?
457	S63	Five
458	T7	Five. Good. Five atoms and how many total degree of freedom? Five times three?
459	S63	Fifteen.
460	S64	Three
461	T7	Three. how many rotations are there? Is this linear molecule or not?
462	S64	Not.
463	T7	Nonlinear molecule. Right? The state has destruction. Do you know them? ((He writes on the board)). Something like that. So, has three rotations and how many vibrations are there?
464	S63	Nine.
465	T7	Nine. Ok. Let's translate these numbers now into energy values. For each translation we have one half KT energy, right?

The other purpose of using contingent questions in the courses is to talk about different aspects of a topic and make a complementary question-answer flow. In Excerpt 26, there is an example of this usage. The lecturer opens the interaction with a display question in turn 456. After the evaluation of the student's response in turn 458, he uses a contingent display question about another aspect of the topic but related to the main topic. In this turn, the lecturer makes it easier to give a response by the students through scaffolding. In turn 461 and 463, the lecturer uses a contingent display question again to help the students have a complementary look at the topic.

4.2.4. Convergent and Divergent Teacher Questions

The convergent and divergent dimensions of teacher questions can draw a more comprehensive portrait beyond the typology of teacher questions. Before the analysis of each dimension, it would be better to look at the distribution of both dimensions at the same time.

Table 14.

The distribution of convergent and divergent questions in the corpus

	Number of questioning in the scope	The ratio in the corpus(%)
Convergent Teacher Questions	489	94,03
Divergent Teacher Questions	31	5,96

As it is shown in Table 14, almost all of the teacher questions are convergent. While the percentage of convergent questions is 94,03%, the divergent questions have a proportion of 5,96% in the corpus.

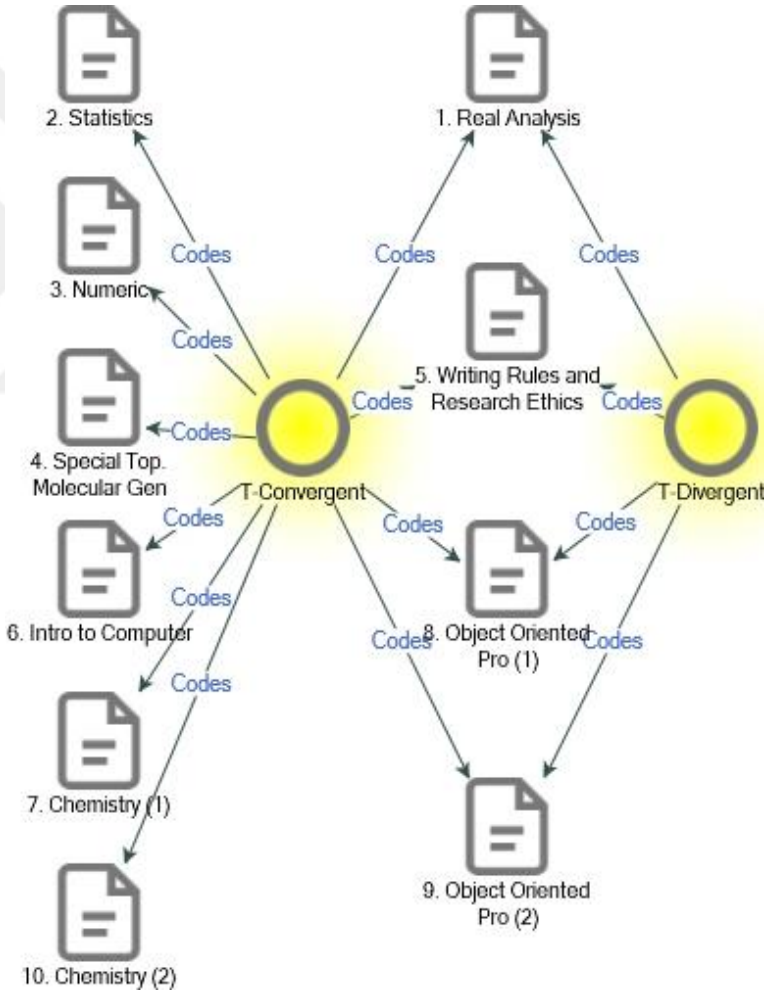

Figure 11. The comparison of convergent and divergent questions

The intersection points of convergent and divergent questions are Real Analysis, Writing Rules and Research Ethics, the first and the second session of

Object-Oriented Programming courses as it is presented in Figure 11. To be more clear, T1, T4, and T6 preferred to use both convergent and divergent questions in their courses while the other lecturers did not prefer to use the divergent question in their courses. It is also prominent to remind that the number of divergent questions is pretty poor in the corpus.

4.2.4.1. Convergent Questions

Convergent questions are like closed-ended questions and they narrow down the response and thinking skills of students. The response to convergent questions are mostly short and requires the respondent to remember previous knowledge. A convergent question can be in all four types of questions, namely authentic, display, clarification request, procedural.

Table 15.

The distribution of convergent questions over four types of questions

Question types	Number of the questions	Number of the convergent questions	The ratio of the contingent questions based on typology (%)
Procedural question	122	122	100
Clarification request	97	95	97,9
Display question	250	228	91,2
Authentic question	51	44	86,27

As it is demonstrated in Table 15, all of the procedural questions are convergent (100%). In the second raw, there are clarification requests. 97,9% of clarification requests are convergent. Then, 91,2% of display questions and 86,27% of authentic questions are convergent. The table proves that over half of all question types are convergent and divergent question use is rare in the corpus.

Table 16.

The distribution of convergent questions over the courses and by the lecturers

Sessions	The lecturers	Experience years	Number of total questions	Number of convergent questions	The ratio of convergent questions
Real Analysis	T1	11-15	48	34	70,83
Statistics	T2	11-15	125	125	100
Numeric	T3	11-15	82	82	100
Special Topics in Molecular Genetics	T4	16-20	7	7	100
Writing Rules and Ethics	T4	16-20	4	3	75
Introduction to Computer Science Laboratory	T5	16-20	10	10	100
Chemistry (1)	T7	1-5	63	63	100
Object-Oriented Programming (1)	T6	16-20	92	81	88,04
Object-Oriented Programming (2)	T6	16-20	66	58	87,87
Chemistry (2)	T7	1-5	23	23	100

Table 16 reveals that all of the question types in the courses of Statistics, Numeric, Special Topics in Molecular Genetics, Introduction to Computer Science Laboratory, the first and the second session of Chemistry are convergent. The lecturers of these courses did not use any divergent questions. The experience years of the lecturers did not affect the convergent dimension of the questions. Because the most obvious proof is that the Special Topics in Molecular Genetics and Writing Rules and Research Ethics courses are delivered by the same lecturer, T4. While the lecturer preferred using convergency in all of his questions in Special Topics in Molecular Genetics course, he preferred to produce 25% of his questions in the divergent form in Writing Rules and Research Ethics course. One of the most experienced teachers, namely T6, used convergency in almost similar percentages in his two sessions. 88,04% of all questions produced by T6 are convergent in the first

session of Object-Oriented Programming and 87,87 % of the questions are convergent in the second session of the same course. T1 uses 70,83 % convergency in all of his questions.

Excerpt 27

The first example of convergent question

473	T7	What is the conversion from solid to liquid then? What is the conversion from solid to liquid? You have eyes, you heat it, it goes to liquid form. What is it called? (++) what is the process of heating ice in Türkçe [Tr. Turkish], the ice into?
474	S60	Melt.
475	T7	Yes melting. Good. Ok. Melting is sometimes called fusion. What is the accurate solid phase transition? (+++) from liquid to solid? You?
476	S61	Froze.
477	T7	Yes. I hear. Freezing. What is from liquid to gas? You have water, you [
478	S61	] Evaporation [
479	T7	] Evaporation. Let's say evaporation or boiling. Ok. What is gas to liquid transition?
480	S63	[inaudible].
481	T7	Kind of. Yes. But there is not such a word. Let's find the word for that (++) We call condensation. Ok? What about from solid to gas directly?
482	S64	Süblimleşme. [Tr. Sublimation]
483	T7	Yes. Someone is saying in Turkish süblimleşme [Tr. sublimation]. Süblimleşme [Tr. sublimation] is not Turkish word. Don't worry to say it. It is called sublimation.

In Excerpt 27, the lecturer initiates the interaction with a display convergent question which requires the students to recall previous knowledge in turn 473. After the response, the lecturer asks a display question again in turn 475. This question is a contingent one as it bridges with preceding utterances and it is also convergent as it requires the students to recall a knowledge taught to them previously. This purpose of using the convergent questions goes on in turns 477, 479, and 481. The episode is

about the states of the objects and it is understood that the lecturer has taught the topic to the students before. During the natural flow of the course, the lecturer would like to see the students' knowledge of the content. As the answers of the students are short and the questions do not require complex thinking skills, these questions are convergent display questions. As it was stated before, this episode does not a proof for the fact that all display questions have convergent feature.

Excerpt 28

The second example of convergent question

45	T2	So the probability of success, let's say P, the probability of success let's say P. Ok. So, what is the probability of failure?
46	S25	1-P.
47	T2	1-P. Because all probability, all probability must be equal to 1 and we have two possible outcomes, ok? So, in table form, in table form, we have a distribution like X, ok? X probability, X is equal to X ok? When we get 1, what is the probability?
48	S26	P.
49	T2	P. When we get zero, probability is?
50	S25	1 minus P.
51	T2	1 minus p and all probability equal to 1.

One of the fields in which convergent questions are most frequently used is a mathematical course. During solving a problem, the lecturers would like the students to give a response in each step of the problem and use convergent questions, which requires a short response like a number or yes-no answer. The example in Excerpt 28 is one of them. The lecturer starts to solve a problem on the board and initiates an interaction with the students by a convergent display question. The student gives a short response in turn 46 and the lecturer evaluates it with a revoicing in turn 47. The lecturer checks whether the students comprehend the topic with alternative versions of the problem through convergent display questions in turns 47 and 49. These questions are also contingent as they are the parts of the preceding problem.

4.2.4.2. Divergent Questions

Divergent questions are accepted as open-ended questions in many studies as they require a high level of thinking skills and require the students to give a response by adapting the content to their world and ideas. Divergent question was found rarely in the corpus. The quantification of the analysis confirms this fact.

Table 17.

The distribution of divergent questions over four types of questions

Question types	Number of the questions	Number of the divergent questions	The ratio of the divergent questions
Authentic question	51	7	13,7
Display question	250	22	8,8
Clarification request	97	2	2,06
Procedural question	122	0	0

Divergent questions are mostly emerged with authentic and display questions (see Table 17). 13,7% of authentic questions and 8,8% of display questions are divergent. It is seen in Table 17 that 2,06% of clarification questions are convergent, which means that almost all of the clarification requests are convergent. The procedural questions are totally in the convergent pattern. There is no use of procedural questions in divergent dimension.

Table 18.

The distribution of divergent questions over the courses and by the lecturers

Sessions	The lecturers	Experience years	Number of total questions	Number of divergent questions	The ratio of divergent questions (%)
Real Analysis	T1	11-15	48	15	31

Table 18. (continued)

The distribution of divergent questions over the courses and by the lecturers

Sessions	The lecturers	Experience years	Number of total questions	Number of divergent questions	The ratio of divergent questions (%)
Writing Rules and Research Ethics	T4	16-20	4	1	25
Object-Oriented Programming (2)	T6	16-20	66	8	12,12
Object-Oriented Programming (1)	T6	16-20	92	10	10,86
Statistics	T2	11-15	125	0	0
Numeric	T3	11-15	82	0	0
Special Topics in Molecular Genetics	T4	16-20	7	0	0
Introduction to Computer Science Laboratory	T5	16-20	10	0	0
Chemistry (1)	T7	1-5	63	0	0
Chemistry (2)	T7	1-5	23	0	0

As it is presented in Table 18, the questions were used in a divergent pattern only in four courses, namely Real Analysis, Writing Rules and Research Ethics, the first and the second sessions of Object-Oriented Programming. T1 used 31,25% of his questions in the divergent pattern in Real Analysis course which is the highest percentage in all corpus. T1 has an 11-15-year-old experience in teaching. T4 delivered two different courses in the present study. While he used his all questions in the convergent form in Special Topics in Molecular Genetics course and did not prefer producing divergent questions, he used 25% of his questions in a divergent pattern in Writing Rules and Research Ethics course. Yet, it is important to state that the lecturer used only four questions in the second course. T6 is one of the most experienced lecturers and he used 10,86% of all questions in a divergent pattern in the first session of Object-Oriented Programming course and he used 12,12% of all questions in divergent nature in the second session of the same course. Any divergent question could not be observed in the other 6 courses.

Excerpt 29

A divergent question resulted in short student response

78	T1	How can you define an open set only using these detailed points?
79	S23	If every [
80	T1	] mmm if every point [
81	S24	] If E is eşit [Tr. equals]
82	T1	Yes exactly, ok. If any point of E is integral, yes exactly.

As it is reported in Excerpt 29, the divergent questions do not always bring longer responses with them. The lecturer would like the students to make a definition with their own words in turn 78. A student tries to give a response in turn 79 but he is overlapped by the lecturer. The lecturer scaffolds the student so that the student can complete the response in turn 80. Another student overlaps the lecturer in Turn 81. In the last turn of the interaction, the lecturer decides to continue by his own words and it is revealed that the lecturer intends to see some part of the response under inquiry and he decides that the students can define the desired subject.

Excerpt 30

A divergent question resulted in longer student response

403	T6	How do I do the same thing? A global operator that doesn't take a parameters? Yes?
404	S73	Static member.
405	T6	What do you mean static?
406	S73	We can use it without mmm [
407	T6	] But if this member, member function doesn't take any parameters means that it is taking at least one parameter that’s the object itself. How do I do this?
408	S73	We should [inaudible].
409	T6	What's that again?
410	S73	Maybe we should [inaudible] class [inaudible] as global.
411	T6	No. I'd like to use this as a member function.

The example in Excerpt 30 is from Object-Oriented Programming course and the lecturer opens an interaction with a divergent display question in turn 403. The lecturer would like to see how the students comment on the adapted version of the subject on the board. A student gives a short response which does not meet the expectation of the lecturer in turn 404. So, the lecturer uses a clarification request which is both a contingent and a divergent question as it is related to the main question in turn 405. The lecturer is in pursuit of a divergent response in turn 405. While the student tries to find the correct word in turn 406, the lecturer overlaps him and make an explanation as a response to the possible completed response of the student. Immediately after the explanation, the lecturer uses another divergent display question in turn 407. The student response is inaudible both to the lecturer and the researcher in turn 408. So, the lecturer uses a convergent clarification request that has emerged due to the low voice.

4.3. RESEARCH QUESTION TWO

The second research question of the present study is if there is any effect of teacher questions on student response in EMI classrooms. Depending on teacher questions, the student response was analyzed under two topics, STT and SCT after the analysis of the teacher questions. First, I will present STTs and then I will present one of the main focus of the study, SCTs. Before that, an overall look at the distribution will be presented.

Table 19.

The distribution of STTs and SCTs over the teacher questions

	Number of Response	The ratio over teacher questions (%)
Student Typical Talk	405	77,88
Student Critical Talk	4	0,76

First of all, it has been found that 78,64% of all teacher questions were answered. As it is apparent in Table 19, there is overwhelmingly STT in the corpus.

77,88% of all teacher questions were responded by the students with a typical talk while only 0,76% of teacher questions were answered by critical talk.

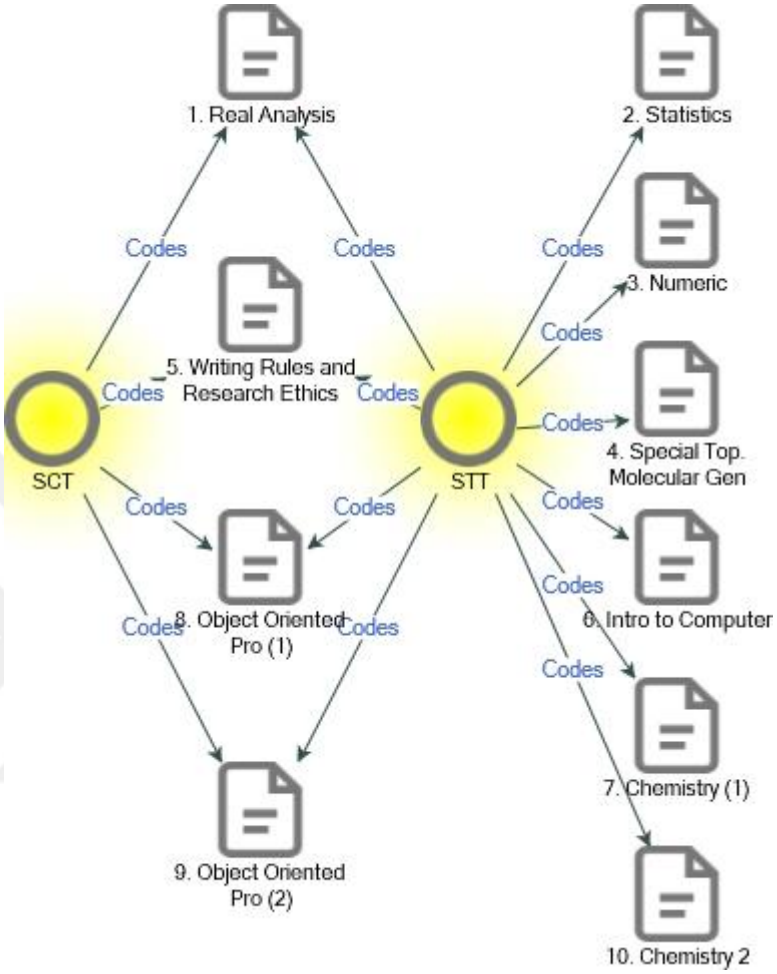

Figure 12. The comparison of STT and SCT

It is obvious in Figure 12 that both STT and SCT were produced in Real Analysis, Writing Rules and Research Ethics, the first and the second sessions of Object-Oriented Programming courses. These courses are also the only ones in which divergent teacher questions were produced. In the other courses in which all of the teacher questions were convergent, the students only produced STT.

4.3.1. Student Typical Talk

STT is simply the student answer produced in response to teacher questions. I separated typical student talk from the critical ones to see the effect of teacher

questions. First, it will be beneficial to see the distribution of STT over the courses and the lecturers.

Table 20.

Typical student talk as a response to a teacher question

Sessions	The lecturers	Experience years	Number of Teacher Questions	Number of Student Typical Turn	Ratio (%)
Chemistry (2)	T7	1-5	23	22	95,65
Statistics	T2	11-15	125	113	90,4
Real Analysis	T1	11-15	48	43	89,58
Chemistry (1)	T7	1-5	63	51	80,95
Object-Oriented Programming (1)	T6	16-20	92	71	77,17
Object-Oriented Programming (2)	T6	16-20	66	49	74,24
Special Topics in Molecular Genetics	T4	16-20	7	4	57,14
Numeric	T3	11-15	82	45	54,87
Introduction to Computer Science Laboratory	T5	16-20	10	5	50
Writing Rules and Research Ethics	T4	16-20	4	2	50

As it is reported in Table 20, T1 used a total of 48 questions and there were 43 typical student responses that were shorter than 10 seconds or not coherent with the topic in Real Analysis course. The differences between teacher question and student response show that either the lecturers did not get any answer to some questions or there was an SCT. T2 produced 125 questions in Statistics course which is the

highest number in the corpus and 113 of these questions were answered by the students. The answers to the questions of T3 were quite a few because only 45 student responses were produced to the 82 teacher questions. It is obvious that almost half of the teacher questions were answered with STTs in the course of Special Topics in Molecular Genetics, Writing Rules and Research Ethics, and Introduction to Computer Science Laboratory courses. There are two courses that were observed by two sessions, Chemistry and Object-Oriented Programming. In two sessions of both courses, much more than half of the teacher questions were answered through STTs.

Excerpt 31

An example of STT

462	T6	I think I can see something about these four functions. I said negative thing about them. I thought I liked them. I said it is your problem. If you don't like something that's your problem because you know I think. So, why didn't I like these four of functions in the private section? I didn't like them because they are private?
463	S53	No.
464	T6	No. There could be private functions. I didn't like them, I said, not?
465	S54	They don't belong to variables of class.
466	T6	What? What is it again?
467	S54	They don't belong to variables of class.
468	T6	Actually they don't belong to the class. What (++) what is the definition of the encapsulation again? Somebody tell me the definition of the encapsulation. (++) Putting? Data and?
469	S55	Functions.
470	T6	And the functions that come through that data in the same capsule right?

In Excerpt 31, the lecturer would like the students to remember a previous issue about which the lecturer talked before with a display question in turn 462. The student gives a typical one-word answer in turn 463. Yet, the lecturer enhances an

explanation and uses a contingent, convergent, display question with the intention to get a more descriptive answer. In turn 465, another classroom member gives a longer answer. The answer is text-based student typical talk. It is not critical and less than ten seconds. Also, it is based on recalling a previous issue. The lecturer cannot hear the voice of the student and uses a clarification request which is both contingent and convergent in turn 466. The student redefines the answer in turn 467 with the same features. The lecturer evaluates the response as wrong and he prefers to ask a different question that is also related to the main topic in turn 468. The question is a contingent, convergent, display question so it does not require a long high-level response. As it is seen in turn 469, the student gives a one-word response which is an STT.

Excerpt 32

Longer interaction with STT

492	S67	Teacher?
493	T6	Yes?
494	S67	Why we use our [inaudible] prototype?
495	T6	Why are we sending these parameters as why are we using call by reference?
496	S67	Yes.
497	T6	So, you tell me the answer?
498	S67	If we change something we use [
499	T6	] Well, I mean it looks like you are not going to change anything
500	S67	Yes.
501	T6	And this const right so it is const and it is called by coreference. We are saying that we are going to change something than we are saying no, I am not.
502	S67	[inaudible]
503	T6	What?
504	S67	Saving the resources. I mean memory, saving the memory.
505	T6	Yeah just like. Explain it a little bit more? What do you mean?
506	S67	We just we don’t copy the subjects any [

Excerpt 32 (continued)

Longer interaction with STT

507	T6	] Yeah hıhı. Account one account one is a class ok? Whose objects include one-two integers.

In Excerpt 32, there is an example of an STT. The responses of the student are shorter than the required features for SCT but the example is proof of the fact that typical student talk is not a barrier for long teacher-student interactions in the classroom environment. As one of the exceptional situations in the corpus, the student initiates the interaction. In turn 495, the lecturer redefines the student question for clarification and takes the confirmation of the student. Yet, the lecturer would like the student to answer his question as the lecturer taught the topic before in turn 497. The student incorporates the interaction successfully in turns 498, 502, 504, and 506. The excerpt belongs to the second session of Object-Oriented Programming delivered by T6. The lecturer spent a special effort to create teacher-student interaction in the classroom by requiring the students to ask questions to him. Yet, the lecturer had the authority during the interactions and frequently overlapped the students.

4.3.2. Student Critical Talk

SCT is the utterance that is longer than ten seconds and coherent in the interaction and produced by the students. In all corpus, there are only 4 SCTs out of 409 student responses.

Table 21.

The distribution of SCTs

Courses	Total Student Utterance	The number of SCTs	Ratio over total student utterances (%)
Object Oriented Programming (1)	91	1	1,09
Object Oriented Programming (2)	66	1	1,51
Real Analysis	49	1	2,04
Writing Rules and Research Ethics	4	1	25

It is clear in Table 21 that there is only one observed SCT in each of four courses, namely Real Analysis, Writing Rules and Research Ethics, two sessions of Object-Oriented Programming courses. It is a generally accepted fact that SCTs are produced after authentic and divergent teacher questions. This typical emergence is available in the corpus but there are some exceptional situations.

Excerpt 33

SCT as a response to the teacher display question

386	T6	What does this say? If you are overloading an operator, at least one operand should be class types like a string or bank account or money or board, Npuzzle.
387	S60	Both of them are (+++) fundamental types. We wouldn't been (++) have to overload them. Because they are already known.
507	T6	] Yeah hıhı. Account one account one is a class ok? Whose objects include one-two integers.

It is seen in Excerpt 33 that the SCT in turn 387 is produced after a display convergent teacher question. The lecturer asks about the operation on the board and requires the students to explain it. The student (S60) gives a response that is longer than ten seconds, related to the question, and coherent with the topic under discussion. The time of the utterance takes 12 seconds and it is one of the longest responses in the corpus.

Excerpt 34

Another example of SCT

471	T6	Any question so far? Esra, what was your question Esra? Now let's come to your question.
472	S66	In const function [
473	T6	] In what?
474	S66	In const function, one parameter is constant but two parameters are second parameter const, not const [inaudible]. For example, this

Excerpt 34 (continued)

Another example of SCT

		changed.
475	T6	You are saying I have a member function F. Let's say inside this box class.
476	S66	Yes.
477	T6	Alright?
478	S66	Yes.
479	T6	I have a function named F.
480	S66	Const.
481	T6	And F is a const function.
482	S66	Yes.
483	T6	And it takes, let's say a bank account.
484	S66	Evet [Tr. Yes]. First parameter const but second parameter not const.
485	T6	But it can happen. it says that this one is a const one.
486	S6	Yeah.
487	T	Ok. This one is const bank account.

As it is reported in Excerpt 34, T6 initiates the episode by a request a student to ask a question to him. The student prepared her question and tries to ask but is overlapped by the lecturer which is a frequently observed event in the courses of T6. After the clarification request of T6 in turn 473, the student completes her utterance which is an SCT in turn 474. But it is important to state that SCTs are not always understandable and they may cause breakdowns in the interaction because of the lack of vocabulary competence of the students. The rest of the interaction is based on the clarification of the SCT produced by the student (S66). The student incorporates the interaction and holds the floor in each turn.

CHAPTER V

5. DISCUSSION AND CONCLUSION

5.1. INTRODUCTION

In the last part of the study, the findings will be discussed by comparing with the studies in the field. After discussion, an overall conclusion, pedagogical implications, suggestion for further research and the limitations of the present study will be demonstrated.

5.2. DISCUSSION

The present study has two main objectives. One of the purposes of the study is to investigate the teacher questioning in EMI classrooms and the second objective of the study is to see the student talk as a reaction to teacher questioning in an EMI university in Turkey. First of all, the results of the first research question will be discussed, then the second research question will be under discussion in the second part.

5.2.1. Discussion of the First Research Question: Teacher Questioning

Teacher question which shapes what and how is talked in the classroom is one of the prominent tools for the mainstream of classrooms. This was a case varying according to the courses and the lecturers in the present study. The findings revealed that the most frequent questioning by the lecturers was in mathematical courses, Statistics and Numeric respectively. The third most frequent questioning was produced by the lecturer of the first session of Object-Oriented Programming course.

The lecturer of the course (T6) always used presentation slides and the reflection of his computer on the board. It was much more than a theoretical narration as the lecturer always demonstrated the appliance of what he was telling. The experience years of the lecturers did not affect this intensity of questioning as it was seen that the lecturers of the first (T2) and the second (T3) courses were less experienced than the lecturer of the third course (T6). It is important to examine the scope, typology, contingency and convergent-divergent dimensions of the teacher questioning to have a better understanding of classroom discourse of an EMI setting. The least questioning was seen in Introduction to Computer Science course which was delivered by T5. In this course, the lecturer used presentation slides and checked if the students had any question to him but he did not much prefer to ask questions to the students. The second and the third least use of questioning was by T4 in the courses of Writing Rules and Research Ethics and Special Topics in Molecular Genetics. Like T5, the lecturer preferred to use a narrative method by presentation slides and he sometimes checked if the students had any questions about the topic on his agenda which mostly in the form of a procedural question. The difference in the distribution of the questions used by the lecturer of Chemistry sessions (T7) showed that different courses are more similar in the distribution of question types than in similar courses as it is proven in the study of Dafouz and Sánchez-García (2013: p. 144).

The present study aimed to unpack the interactional nature of teacher questions and the results revealed a prominent number of teacher questions. In the analysis of my first research question, I looked for the scope of the teacher questions under two topics, textual and extra-textual (text-based and text-inspired). This required to examine to what extent the teacher questions were related with or beyond the scope under discussion. The results reported that a very small quantity of teacher questions was asked about extra-textual topics. As the research of EMI field is new and restricted for the topic under investigation in this study, there is no study to confirm or refute this fact in the present study. So, it may be compared with other settings. Boyd (2015: p. 376) has almost a similar percentage in his one of the focal courses in ELL classroom. It was also concluded that there were only nine extra-textual questions in the courses of Writing Rules and Research Ethics and the second session

of Object-Oriented Programming. Two courses were the only intersection area in which extra-textual and textual questions had a relationship. Both of the courses had a narrative form and eight of extra-textual questions emerged in the second session of Object-Oriented Programming course. Although the lecturer (T6) delivered two sessions of the same course, he preferred to use extra-textual questions in one of the sessions. This finding is proof of the fact that the scope of teacher questions and the interactions were not affected by the experiences of the teacher. The other eight courses had totally text-based questions. The borders of mathematical courses are narrow as the lecturers of the courses follow mostly the same path which is based on developing the solution of a problem step by step. Thus, the lecturers felt less need for an inquiry to learn the ideas, views, personal contributions of students to the topic under discussion as mathematical topics have usually one correct fact.

The representative excerpts of the focused and exceptional situations in the corpus uncovered that the text-based teacher questions resulted in short student-answers although they may be in every type of question like authentic or display. This situation has a similarity with the study of Boyd (2015: p. 376) in which he reports that text-based teacher questions narrow downs student talk. Yet, text-based questions were answerable by the students (Rubin, 1990: p. 10) and they authorised the students to make comments on the topic explored together (Boyd, 2016: p. 226), especially in three mathematical courses in the present study. With a minimal percentage, extra-textual questions had not a homogenous distribution in the corpus. Except for one question, all of the extra-textual questions were produced in the second session of Object-Oriented Programming. The examples in the findings revealed that extra-textual questions mostly provided longer student talks and enabled the students to go deeper into the subject as it is like in the study of Boyd (2015: p. 386). Yet, the current study unpacked some exceptional situations. Extra-textual questions did not always elaborate on the discussion and increase the intensity of the student talk. As it was proved in Excerpt 8, it also resulted in shorter answers and restricted the flow of the interaction that the lecturer intended to create. As it was reported before, T6 was a teacher who spent an explicit effort to increase classroom interaction consciously and he believed this method to develop the learning of the student according to his statements. By the results, it was revealed

that he used ‘dialogic teaching’ (Mercer and Littleton, 2007, p. 38) through which he encouraged the students to ask questions to him, to state their views and to comment on the issues emerged in the classroom or the issues about the assignment, which is in harmony with the argument of Morell (2007: p. 222). Though the lecturer made the students felt his authority somewhat especially in the closing of the episodes, he took the students’ contributions into account for their development in the subject on his agenda and he enabled the students to seek for understanding by his questions and talk.

In the second category of teacher questioning, the typology of the questions was investigated to have a deeper understanding of teacher inquiry in EMI classrooms. As quantification analysis revealed that the most used question type was display question and then procedural question, clarification request and authentic question respectively. The study of Hu and Li (2017: p. 197) as well as of Hu and Duan (2019: p. 303) explored that the most frequently used question type was display questions which has the same result with the present study. Procedural question was one of the most used questions in the present study as in the study of Duran (2017: p. 34). Clarification requests stayed behind the expectations with its frequency as it was supposed to be used more frequently due to the nature of the setting in which content is focused much more. At this point, the present study has a conflict with the study of Sánchez-García (2016: p. 192) in that clarification requests in the present study were not the patterns coming first. In other words, the participants did not need to use clarification requests much in the present study, which has a similarity with the findings of an ESP study conducted by Chang (2012: p. 103). Authentic questions were the least used question type in the corpus which draws a contrary fact with the EMI classrooms of Sánchez-García (2018: p. 118) in which there is an abundance use of referential questions compared to the L1 classrooms. The teachers’ experiences and disciplinary background did not affect the frequency and complexity of teacher questions. This result is coherent with the study of Dafouz and Sánchez-García’s (2013: p. 144) findings in which EMI courses from different disciplines are more similar than the difference of the courses from the same disciplines in the frequency and the preference of question types. Yet, this establishes a contrast with the findings of the content-based instruction study by Lo

(2014: p. 141) that revealed a clear disciplinary difference in functions of teacher questions and overall teacher talk.

By a close examination of discourse analysis for each question, the authentic question was mostly observed in Real Analysis, Statistics and the second session of Object-Oriented Programming. There are three mathematical courses in the corpus. One of them, Numeric, was at the very back lines of the distribution. This means that the type of the course makes no effect on the kind of the questions as well as the teachers' experiences as explained previously. This different distribution of authentic question over courses may have occurred due to the nature of the subject of the observed week, the teaching style of the lecturer or goals on the agenda of each lecturer (Sánchez-García, 2016: p. 265). According to the excerpts represented in the findings, authentic questions promoted classroom discussion though they had a quite small space in the corpus. They were mostly used to see the representation of students' knowledge with their ideas and views about the topic or for exemplification. The lecturers generally checked whether the students could give an example of the subject which would be evidence of learning and internalizing by the student for the lecturers. Another use of authentic question in the scope was constructed out of the context by extra-textual questions which resulted in long discussions and student talk. Additionally, it was proven that authentic questions broadened the scope with a transition from a display question to an authentic question (see Excerpt 12). One exceptional use of authentic question emerged from linguistic insufficiency. The lecturer (T7) would like to give an example from a bird kind, sparrow, but he did not know or remember its meaning in English. He asked for it to the students and he went on with a satisfactory answer. This situation was also encountered in the study of Sánchez-García (2016: p. 213) through the students.

The second examined type of question was display question which was most frequently used in the corpus as it is seen in the studies of Sánchez-García (2016: p. 268) and Hu and Duan (2019: p. 303). Display question was mostly used in Statistics, a mathematical course, by far. The second and the third courses in which display question was used were mathematical courses Real Analysis and Numeric respectively. As it was understood from the excerpts presented in the findings,

display question was used in the situations in which the lecturer expected one- or two-word response or a yes-no response. In addition to this function, it was exceptionally observed that display question can be used as a gap-filler by teachers. For being more explicit, while the lecturer (T6) dealt with something in the classroom like searching for a page in the presentation or checking the classroom list, the lecturer asked a display question for breaking the silence in the classroom. It was assumed that the lecturer used a display question the response of which the lecturer knew beforehand as he paid half her/his attention elsewhere and he wanted to keep the listening under the control. As a final note for display question, it was sometimes observed that there were sophisticated and extended student responses through a tailor-made display question in a chain of IRF which bore a similarity with the authentic questions in function though it was rare in the corpus. This approximation with authentic questions is encountered in the study of Sánchez-García (2016: p. 199) which reports no observable change in the length or complexity of students' responses by the comparison between the display and referential questions. This was achieved through the scaffolding of the lecturers most of the time in the present study. It is also worth to underline clearly that display questions were much more frequent than authentic questions. When compared with the studies for this finding, it is possible to find some similarities between the present study and the study of Maíz Arévalo (2017: p. 24). It was also proved that the experience of the lecturers did not affect the preference between two types.

Clarification request was the third most used question type in the scope. When it is compared with the study of Meneghetti (2016: p. 113) in which this question type is at the least usage, its proportion in the scope of the present study is much more. It was mostly used in Numeric, the first session of Object-Oriented Programming and Statistics courses. This distribution demonstrated that there was no effect of the types of courses on the frequency of clarification questions as well as teaching experiences of the lecturers. The fact that there is no effect of different course types on the frequency of question types has similar consequences in the study of Lo (2014: p. 141) as stated before. Clarification request was mostly used to repair when there was a partial or total failure in the communication. The other most frequent function of the clarification request was to request a further explanation to

make the topic under discussion more understandable. In some episodes that emerged in mathematical courses, it was observed that the lecturers used clarification requests with modelling through which, the lecturer presented two optional choices composed of the wrong response of the student and the correct one. A fined-grained analysis of the episodes revealed that clarification request can enable the students to use language features at a higher level than the other question types. To be more specific, the students incorporated with the discussions and held the floor most of the time in response to clarification request of T6 in Object-Oriented Programming course. The students presented the ability to handle with the discursive feature of the language. On the other hand, in mathematical courses, especially in Statistics, clarification requests were produced by the lecturers due to the lack of language proficiency of the students which will be explained in detail in the second part. It can be inferred that the disciplines of the courses did not affect the distribution of a question type while it impacted and differentiated the function of a type.

Procedural questions were the second most used question types after display questions. This result draws a contrast line with the study of Meneghetti (2016: p. 66). This question type was mostly used in Statistics, the second session of Object-Oriented Programming and Numeric courses in the present study. It is significant to state that the students were required to use a calculator frequently in Statistics course. Before solving a problem on the board by a collective discussion, the lecturer (T2) required every student to calculate the operation and find the solution. After this activity, the lecturer solved the problem on the board by asking the students various questions for each step. For this reason, every request for calculation or similar activities were labelled as procedural. So, the procedural question was the second most used question type in the corpus. The other specific use of procedural question was seen in Object-Oriented Programming course. The lecturer (T5) requested the students to ask questions to him by which he managed the classroom discourse and created interaction. The other use of procedural questions in other courses, especially in the first session of Chemistry, was about the issues unrelated to the subject content like cleaning the board. Introduction to Computer Science, Special Topics in Molecular Genetics, and Writing Rules and Research Ethics courses had a modest

frequency like in the other question types as the lecturers of these courses were not very supportive to use questioning.

In addition to the scope and typology of teacher questions, the contingency of the questions was examined. According to the quantification analysis, the contingency was mostly seen in clarification request. The contingent dimension of teacher questions in EMI classrooms was investigated in this study for the first time based on the review of the related literature. Thus, it is not possible to discuss this issue by comparing with a study in EMI setting. Yet, it is possible to find the topic in other fields. This result is in parallel with the study of Boyd (2015: p. 386) which was conducted in English Language Learning setting. The frequency of contingency in other question types was in display, authentic and procedural questions respectively. As the distribution over the courses and by the lecturers was examined, it was apparent that T2 had the highest frequency in using contingency in questions in Statistics course. The second and the third lecturers were T6 in the second session of Object-Oriented Programming and T7 in the first session of Chemistry. It is worth to underline that the differences in distribution between the first and the second sessions of the same courses delivered by T6 and T7 are evidence for the fact that there is more similarity in the distribution of contingency in different courses than the same ones. This is a result seen in the study of Dafouz and Sánchez-García (2013: p. 144). The least frequent use of contingent questions was observed in Introduction to Computer Science Laboratory course. The excerpts reported for the contingency revealed that it was used for going to deeper and further aspects of the topic under discussion. Yet, it is not possible to say that there was a function of contingent questions to enable students to use the language at an utmost level. It is evident that contingent teacher questions resulted in elaborated and coherent student utterances only when they were associated with divergent, authentic, and text-inspired questions, which is also an observable fact in the study of Boyd (2015, p. 388).

In the current study, it is accepted that only typology of the questions may not be enough to evaluate the teacher questioning in the EMI context. The convergent and divergent dimensions of the questions may authorize the researcher to have a

more comprehensive look at the issue. The comparison analysis of both dimensions indicated that only T1, T4, and T6 preferred to use both dimensions of the questions. When the distribution of convergent questions was examined, it was seen that all of the procedural questions were convergent. The frequency of convergent questions in the other three questions types was as follows: clarification request, display question, and authentic question respectively. The percentages of the distribution demonstrated that almost all of the questions were in the form of convergent question, which means that the availability of divergent questions had a small space in the study. This result is in parallel with the findings of Menegale (2008, p:116-119) from a CLIL context. There is not any study in an EMI setting that has searched for the convergent and divergent dimensions of teacher questions. However, this result may be compared with the EMI studies which categorized teacher questions as low- and high-order. In this context, the results about the convergent-divergent dimension of the questions are in parallel with the study of Hu and Duan (2019: p. 310) in which there are also overwhelmingly low-order teacher questions. Convergent question distribution over the courses and by the lecturers is quite similar to the findings of Hu and Duan (2019: p. 310) although the typology of the questions differs. The excerpts taken from the corpus reported that the convergent questions bore short and restricted student responses in whichever type they are.

The divergent questions were mostly created in harmony with authentic and display questions. The divergent dimension was quite a little in clarification request and there was not any divergent dimension of procedural questions. The overall frequency of divergent questions was less than the frequency of convergent questions. This finding creates a contrast with the result of Pun and Macaro (2018; p. 74) in which more high-order questions were observed in late EMI classrooms. The most frequent divergent question was used in Real Analysis course and then in Writing Rules and Research Ethics course. But it is important to underline that there were only four questions totally in Writing Rules and Research Ethics. Being in the second-highest frequency does not mean there is quite immense interaction in this course. The third and the fourth most frequent use od divergent questions were in the first and the second session of the Object-Oriented Programming course. The course presented a consistency for the first time in questioning for both sessions. The

distribution of the divergent questions in both sessions was similar to each other. There was no availability of divergent questions in the other courses. It can be inferred from the representative excerpts in the findings that divergent questions mostly bore longer and high-ordered student responses. Yet, there were some exceptional situations. Although the divergent questions are compelling in terms of high-order cognitive ability, there may be not longer and complex student response if the student does not have sufficient language proficiency. This observable fact in the present study is similar to the findings of Menegale (2008, p: 116).

5.2.2. Discussion of the Second Research Question: Student Talk

The second research question of the study is the student talk as a response to teacher questioning in EMI classrooms. The student talk was examined under two topics, Student Typical Talk (STT) and Student Critical Talk (SCT). The main focus of the researcher is to investigate the presence of SCTs which will be a more apparent proof of student learning. The distribution of student talk demonstrated that almost all of the teacher questions were answered by the students in six different courses, which creates an opposition with the results of Navaz (2013: p. 130) and Meneghetti (2016, p: 87) and almost half of the teacher questions in the other four different courses were answered by the students. The comparison between STT and SCT revealed that there were both STT and SCT in the courses of Real Analysis, Writing rules and Research Ethics, and both sessions of Object-Oriented Programming. It is also quite obvious that only divergent teacher questions provided SCTs. Furthermore, the questioning of the lecturers shortened the distance between the student and the teacher and created an interaction between them as it is claimed by Morell (2007, p: 230). Yet, there was overwhelmingly STT in the corpus which means that the majority of student responses were low-order, short and simple. This consequence of the study is in the same line with the study of Hu and Lei (2014: p. 197-199) which is an EMI study and the study of Menegale (2008, p: 105, 116-119) which is conducted in CLIL context.

STT was mostly used in the second session of Chemistry, Statistics, and Real Analysis courses. Also, the students most frequently gave responses to the teacher

questioning in these courses. The courses are totally different from each other both by content and teaching methodology, which is evidence for the fact that the type of courses is not effective on student responses. The lecturers' experience years did not affect the involvement of the students into interaction as the first lecturer (T7) who established the highest student involvement is the least experienced teacher in the corpus. Although there was a high involvement of students in the interaction and student response, the responses from students were typical that did not necessitate high cognitive skills. In four courses in the corpus, namely Special Topics in Molecular Genetics, Numeric, Introduction to Computer Science Laboratory, and Writing Rules and Research Ethics, almost half of the teacher questions were answered with typical student talk, which is less than the other courses. Specifically, the lecturer (T3) in Numeric course produced a high number of question and half of them was unanswered which means that students preferred to keep their silence for quite some time as it is seen in the study of Hu and Li (2017, p: 199). The fact that the students answered half of the teachers' questions in the other three courses may be attributed to the prevention of the lecturers (Sánchez-García, 2018: p. 118) as the number of teacher questions were very low in these courses, namely Special Topics in Genetics, Introduction to Computer Science Laboratory and Writing Rules and Research Ethics. As it was seen by the episodes, STT was either in the form of a yes-no answer or in the form of a one- or two-word answer. It was very rare to see an STT that last ten seconds.

SCTs were only observed in four courses. There was one SCT in each of the courses of Real Analysis, Writing Rules and Research Ethics, the first and the second sessions of Object-Oriented Programming. Only in Writing Rules and Research Ethics course, there were four teacher questions and only one of them was responded by SCT. This only question bearing SCT was a divergent one. This means that divergent authentic teacher questions are one of the key strategies for the emergence of SCTs (Boyd, 2015: p. 376). Yet, the availability of SCT was quite little in the corpus to make a real generalization for this fact. Also, there were some exceptional situations in the corpus. The excerpts have reported that SCTs may not be always understandable and they may cause breakdowns in the interaction because of the low vocabulary competence of the students. Also, there was an example of SCT produced

after a convergent display teacher question. In the other three courses, there was a huge difference and gap between SCTs and teacher questions. All in all, as reported before almost all of the teacher questions were responded by STTs.

5.3. CONCLUSION

This study presents the use of questioning by the teachers and the responses of the students in an EMI setting. The study also reveals the interaction established via teacher questions and student responses to these questions. Beyond the categorization of teacher questions as good or bad, the scope, the typology, and the contingency of teacher questions were taken into the investigation as well as contingent and divergent dimensions of teacher questions. To see the function of teacher questions, the responses of students were analyzed as typical and critical each of which documented an implication about classroom discourse.

Through the observation method in ten EMI courses, the findings demonstrated that the most frequent questioning by the lecturers was in mathematical and engineering courses. The other courses showed rare teacher questioning. It was proven that most of the lecturers had a heavy burden in their curricula however the lecturers in some of the mathematical and engineering courses spent time encouraging the students to involve in the classroom interaction. Furthermore, there was no evidence for the effectiveness of teachers' experience years on the frequency of questions. Additionally, it was found that there was more similarity in the frequency of teacher questions between different courses than the sessions of the same courses. This may be attributed to personal choices and especially to the topic of the day. Because some lecturers' choices for questions were observed as quite different in another session of the same course.

The lecturers mostly preferred to keep their questions on a textual line. This may have resulted from the nature of the instruction setting. In other words, the primary aim of EMI courses is to provide content learning and the lecturers seem not to deviate from the subject. Text-based questions restricted the length of the students' responses in whichever kind it was typologically but they were more answerable by

the students. On the other hand, extra-textual questions provided longer student responses and enabled students to try to go further into the topic under discussion. Exceptionally, it has been concluded that extra-textual questions may cause break downs in interaction as the students try to compose the words together to constitute a meaningful utterance.

The typological distribution of the teachers' questions demonstrated that the lecturers used display questions more frequently than the authentic questions by far. While display question was the most used question type by the lecturers, the authentic question was the least frequent question type. The occurrence of questions typologically demonstrated that the type of courses did not affect the kind of the questions as well as the teachers' experience years. Thus, it was attributed to the nature of the subject of the observed week, the teaching style of the lecturer, or the goals on the agenda of each lecturer. Authentic questions were used to see students' exemplifications of the topic or conveying their understanding with their own words. So, authentic questions promoted classroom interaction. Display questions were observed to result in restricted, short, and non-complex student responses. However, it was proven that display questions could promote longer teacher-student interactions with scaffolding by the teacher. Both authentic and display questions were mostly seen in mathematical and engineering courses as it was assumed that they contained more questions in number. Procedural question was the second most frequently used question type by the teachers. The main reason for this frequency was that the content of mathematical courses required students to calculate the problem. The lecturers asked students to use their calculators and they used procedural questions to manage the classroom during this individual activity. The distribution of the clarification request remained behind the expectations. As it was a content-focused context, clarification requests were expected to be used frequently. Yet, it was the third most used question type. Clarification request was mostly used to request for further explanation from the students by the lecturers. It was also produced with teacher modelling during solving a long and complicated mathematical problem and was used in each step of the solution. Clarification requests provided the students to use language at a high capacity. However, it was also used by the lecturers due to the low vocabulary proficiency of the students.

What was clearly indicated by the excerpts was that two contrasting functions of clarification requests could be presented in the components of a single pattern.

The contingency of teacher questions was mostly seen in clarification requests as teachers used clarification requests for preceding student utterances in the third or further turns. The contingent questions were more frequent in mathematical and engineering courses than the other ones. This could result from the number of questions as there was no effect of course types or teachers' experience years on the questions. It was evident that contingent teacher questions resulted in elaborated and coherent student utterances only when they were associated with divergent, authentic, and text-inspired questions.

When it comes to the convergent and divergent dimensions of teacher questions, procedural questions and clarification requests were more in convergent form than display and authentic questions. Display and authentic questions were more suitable for the function of divergent inquiry. Overall, in the corpus, almost all of the teachers' questions were convergent. As the convergent question is a low-order question type, it results in short and mostly one-word student responses as it was in the present study. The high percentage in the use of convergent questions may have stemmed from the nature of the courses in which there was always a stress on the comprehension and the internalization of disciplinary knowledge. Yet, in any case, the highly distorted distribution of low-order questions which were convergent in the present study and the student answers weakens EMI's optimistically and possibly implemented dual goal – mastery of subject material and the development of English skills (Macaro et al., 2018: p. 66-68). The divergent dimension of the questions was observed very rarely and it was parallel with the infrequency of extra-textual and authentic questions. The divergent questions mostly bore longer and high-ordered student responses. Yet, the insufficiency of students in the language sometimes hindered these high-ordered responses. It can be inferred from the representative excerpts that no matter how compelling the divergent questions are in terms of high-order cognitive ability, there may be not longer and complex student response as the student does not have sufficient language proficiency.

The study found that over half of the teacher questions were responded by the students. Although there was a high involvement of students in the interaction and student responses, almost all of the responses from students were typical that did not necessitate high cognitive skills. In details, the only question bearing SCT was the divergent one. This means that divergent authentic teacher questions were one of the key strategies for the emergence of SCTs. Yet, the presence of them was quite rare in the corpus to make a real generalization for this fact. Also, there were some exceptional situations in the corpus. The excerpts have reported that SCTs may not be always understandable and they may cause breakdowns in the interaction because of the lack of vocabulary competence of the students. Also, there was an example of SCT that was produced after a convergent display teacher question exceptionally.

5.3.1. Pedagogical Implications

The findings of the present study which looked for the interaction in EMI classrooms uncovered some pedagogical implications for the lecturers from the perspective of classroom discourse and HE institutes in terms of policymaking. It was observed that while some of the lecturers used the elicitation technique frequently as in the engineering courses, few of them did not prefer to use the technique as in Special Topics in Molecular Genetics course. The elicitation technique is simply asking questions to get learners to respond. It is an indisputable fact that teachers can dominate the classroom discourse by asking questions (Walsh, 2011, p. 11). They can keep the control of the discourse by eliciting a response, checking understanding, promoting involvement, all of which can be employed by questions. Furthermore, it is an obvious fact based on the results that the lecturers in the present study used convergent display questions in most of the interactions. The shortness in students' responses and silence may be proof for the avoidance of the lecturers from the use of other types like authentic-divergent questions. To use the questions as well as other classroom strategies in a more functional way and more appropriately, EMI lecturers should receive training on a repertoire of pedagogical skills and on the use of appropriate questioning skills to increase classroom discourse competence to encourage students' involvement in classroom interaction and to help the students follow the pace of the classroom. Because the difference between the

frequencies of display and authentic questions is not more important than the relationship between the preference of question and pedagogical purpose of a lecturer according to Walsh (2011, p. 12).

As Walsh (2011, p. 3) asserts, communication in the classroom is quite significant because everything that happens in the classroom derives from it. Communication is the way to promote interaction in the classroom, which is the most important instrument in the curriculum. One of the most important features for establishing interaction is the control of the interaction. The roles of the classroom members are not equal, which means while the teachers are in power in most of the classrooms, learners do not enjoy to keep the control of the patterns of interaction. This typical portrait defined by Walsh (2011, p. 3,4) is observable in EMI classrooms of the present study. The students involved in the interactions under the authority of the lecturers in a three-part discourse structure, IRF, which is a typical feature of classroom discourse. However, this triadic interaction flow causes restricted student responses. If the lecturers use questions more satisfactorily in the IRF chain, they can shorten the distance between the students and themselves, and also, they can make the content subject more approachable to the students.

Based on the analysis in the current study, it was concluded that few of the lecturers did not speak at the level of the students. Because the students' silence was observed even after some convergent questions used only to check comprehension in the current study. Therefore, EMI requires not only sufficient language proficiency but also an effective use of modification strategies. One of the most prominent characteristics of classroom discourse is teachers' modification of speech (Walsh, 2011: p. 6). Because students should understand the speech of the teacher to have progress in learning. Also, speech modification is necessary so that lecturers can ensure that students follow the course and they do not 'get lost' (Walsh, 2011: p. 7) in the flow of classroom discourse in which many events occur at any moment. Few of the lecturers in the present study used some speech modification strategies like checking, clarifying or confirming the meaning and repetition to check the students' learning. In addition to these strategies, EMI lecturers should use a more simplified grammar and vocabulary in clearer and shorter utterances. In one of the mathematical

courses, some of the students requested from the lecturer to explain the topic in Turkish as they found the topic difficult. In these situations,the lecturers can create their 'classroom idiolect' (Walsh, 2006: p. 80) which is another strategy for speech modification. In other words, they can employ an individual way of talking which would be based on their speech style and through which the students may understand the content subject better. In some of the courses, the lecturer speech was so fast that any interaction between students and the lecturers could not be established or some breakdowns occurred due to the misunderstandings of the speech. As another way of speech modification in classroom discourse, EMI lecturers can simply speak slower, louder, use of gestures and behavioural expressions to convey the meaning more deliberately and also, they can use pausing and emphasis in appropriate time.

When it is examined from the students' perspective, the first point that attracts the attention of the researcher was the use of L1 by some of the students despite some teachers' persistent attitudes towards using English. Some other lecturers encouraged the students to respond in L1 when the flow of interaction was halted. This situation raises the fact that how and under which circumstances the language policy of HE institutes is constructed should be reviewed. All of the staff and components of the HE should be taken into account during language policy-making for consistency. Additionally, there were breakdowns in the interactions in which longer student talks occurred. It may have stemmed from the low language proficiency of the students. So, the students need speaking training and discipline-specific vocabulary development in English language. At this point, EMI lecturers can make a collaboration with the lecturers of preparatory classrooms. Moreover, the anxiety of students to constitute a meaningful and longer utterance may have deviated them from holding the floor in interactions. Thus, EMI lecturers can use several specific classroom discourse features to facilitate student involvement and to improve student learning. Additionally, direct error correction which is one of the most prominent features for student involvement in interaction was observed in a few courses in the present study. Also, it was observable that the lecturers in the present study focused on the content feedback rather than the form in harmony with the purpose of EMI. In addition to these used features, EMI lecturers should use the advantage of extended wait-time for the sake of not only increasing the number of

students' responses but also leading to more complex and longer responses (Walsh, 2011, p. 34). Because the lecturers' frequent interventions were observed to cause restrictions in the topic management of the students in interactions.

What becomes apparent overall is that interaction is the most crucial instrument in the curriculum (van Lier, 1996, p. 5) and learning can be achieved not by interaction but in interaction (Ellis, 2000, p. 209). Thus, interaction should be understood by EMI lecturers if they wish to promote learning. To understand the interaction, they should start to look at the interactions that occur in their classrooms. They can simply record their courses as a starting point and analyze the interactions for their classroom interaction competence development. As the last word, EMI lecturers should make appropriate choices in terms of classroom strategies that cannot be mastered easily without comprehension of the relationship between learning and interaction as in the example of realization the difference between display and authentic questions.

5.3.2. Limitations of the Study

The first and the most important limitation of the study is related to the perceptions of the lecturers and the students about their practices under observation. It is obvious that there is a need for an additional introspective research method to have a fine-grained data analysis about the preference of teachers' question types and frequencies. Additionally, there is a gap in the reason in students' silence after some teacher questions. An introspective investigation with semi-structured interviews with the students could reveal some solutions to the challenges in EMI classroom discourse for them. Yet, the quite intense pace of the lecturers due to the curricula and the students' reluctance for interview prevented further investigation in these issues. Furthermore, there is a limitation of exploration about the evaluated academic success of the students in terms of content learning to see potential contributing factors in classroom discourse more clearly. For this aim, there is a necessity for a longer observation containing one full semester or longer duration.

Although the researcher of the present study took the precautions to avoid possible Hawthorne effect (Mackey and Gass, 2005: p. 187), the anxiety of the students and a few of the lecturers was felt in the first minutes. The prolonged engagement was helpful in the courses with longer duration like 163 minutes and it was felt that the students and the lecturers got used to the camera in the second or third session of the course after 10-15-minute breaks. Yet, it could not be possible to take the full advantage of prolonged engagement in some of the courses like the one that lasted for 75 minutes. It is hard to be sure that the behaviours of the classroom members are the same as they would be without recording. The analysis of the recordings belonged to the courses with highly different durations has confirmed this assumption.

5.3.3. Suggestions For Further Research

Although the current study unpacks some aspects of EMI interaction in terms of teacher questions and student response, more research on EMI interaction and classroom discourse is needed. The current study drew primarily on the data of the classroom discourse without taking benefit from the views of the participants on what occurred and why. Future research may implement a mixed-method design that integrates analysis of classroom discourse with interviews and questionnaires to generalize and highlight the patterns of teacher-student interactions resulted from either question-response episodes or any other classroom features in a more comprehensive and in-depth manner. Also, it can generate a willingness for the lecturers to implement future changes in their lessons such as using more divergent questions which points out a need for and the importance of action research in EMI classrooms (Lasagabaster and Sierra, 2011: p. 345). Because of its research method, the present study was unable to examine different causes that may have led to the superiority of display-convergent teacher questions in EMI classrooms. Further research is needed to explore possible causes such as teacher-student interaction patterns shaped culturally, the format of instruction, the academic English proficiency of lecturers as well as their pedagogical training to differentiate the effects of classroom discourse from the effects of instruction medium.

For a more robust picture, future research can observe EMI courses delivered by the same lecturer for longer times and collect data from more classrooms from various disciplines to investigate the possible cross-disciplinary distinctions in the effects of teachers' instructional language on their questioning and student responses in EMI classrooms of Turkish HE institutions. It would be beneficial to see the consistency of the lecturers' preference of question types and frequencies via longer observations. Through longer video-recording times, more authentic classroom courses can be obtained free from students' anxieties that emerged from being filmed. In other words, future research can take more advantage of prolonged engagement.

As a last word, this study is implemented with the lecturers who have a shared L1 with the students. Other studies can be applied with the lecturers who come from different L1 backgrounds to see the different challenges and benefits of EMI. It would be worth to see how a change in L1 background of the lecturers affects the preference for question types and the frequency of classroom discussions as well as the students' responses and their preferences for L1 use.

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APPENDICES

Appendix I

INFORMED CONSENT FORM

This is a study about Englih Medium Instruction (EMI) that is conducted by Eda GENÇ, a student in Social Sciences, English Language Teaching Master's Program at Kocaeli University. The study aims to collect data about the behaviours, opinions, and experiences of the participants in terms of EMI. During data collection, video recording and if required interview data collection methods will be used. Participation in the study must be on a voluntary basis. No personal identification information is required during data collection. The obtained data will be used for scientific purposes and will be kept strictly confidential.

During participation, for any reason, if you feel uncomfortable, you are free to announce it at any time. In such a case, it will be sufficient to tell the data collector that you do not want to be included in data collection.

After all the data are collected by the data collector, your questions related to the study will be answered. I would like to thank you in advance for your participation in this study. For further information about the study, you can contact data collector Eda GENÇ, e-mail: edagenc123@gmail.com

I am participating in this study totally on my own will and I am aware that I can quit participating at any time I want. I give my consent for observation and the use of the information I provide for scientific purposes. (Please return this form to the data collector after you have filled and signed it).

Name Surname Course Taken Date

Signature

……/ ……/……

Appendix II

QUESTIONNAIRE FOR THE LECTURERS IN EMI (ENGLISH MEDIUM INSTRUCTION) PROGRAMS

Dear Lecturer,

This questionnaire aims to investigate your background features. The data of the questionnaire will be used only for research purposes and your answers will be kept confidential so please give your answers sincerely.

Thank you very much for your help!

Age

……..

Gender

○ Female
○ Male

Your title

○ Professor
○ Associate Professor
○ Assistant Professor
○ Instructor
○ Other ……

Home country

……..

Teaching subject

……..

Where do you currently teach at this university?

Faculty:

……

Department:

…….

How long have you been teaching in total?

○ less than 1 year
○ 1-5 years
○ 6-10 years
○ 11-15 years
○ 16-20 years
○ more than 20 years

How long have you lived/studied abroad?

Length of study:

……..

Length of stay:

……

CURRICULUM VITAE

Personal Information

Name Surname: Eda GENÇ

Place and Date of Birth: Kocaeli/1988

Language: English

Email: edagenc123@gmail.com

Educational Background

2006-2010: Uludağ University (Bachelor's Degree)

2018-2020: Kocaeli University (Master's Degree)

Professional Background

2017-…: Sezai Türkeş Feyzi Akkaya Vocational and Technical Anatolian High School (English Language Teacher)

Publications

Genç, E. (June, 2020). "English Language Attitude of Students at a Turkish EFL High School and Effective Factors from the Students' Perspectives" [Congress]. Imascongress, Kocaeli, Turkey.