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Research Article

# The Driving Forces Behind Monolingual and Bilingual English-Medium Instruction: A Comparison of Students' Perspectives in Turkey

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**Keywords:** English-medium instruction, bilingual programs, motivations, academic challenges, language proficiency

**Abstract:** Due to the internationalization of higher education and the widespread use of English as an academic lingua franca, universities are increasingly choosing to introduce English-medium instruction (EMI) programs. However, EMI programs are neither monolithic nor English-only in their implementation. Although research has acknowledged the variation with which EMI is implemented across contexts, little is known about students' motivations for choosing monolingual and bilingual EMI programs or how students' beliefs about these programs compare. This study attempts to address this gap by examining students' motivations and beliefs about the academic and professional benefits and challenges of studying in monolingual (full) and bilingual (partial) EMI engineering programs in Turkey. A questionnaire was administered to 198 undergraduate students, and the responses of students in full and partial EMI programs were compared. The results revealed significant differences between groups with respect to motivations for EMI study, with students on full EMI programs more optimistic about the professional benefits of EMI compared to students on partial EMI programs. Differences were also found regarding students' self-reported English proficiency and beliefs about the academic benefits of EMI programs. The findings are discussed in line with EMI policy and language support.

**Anahtar Sözcükler:** Eğitim dili olarak İngilizce, iki dilli programlar, motivasyonlar, akademik zorluklar, dil yeterliliği

**Eğitim Dili Tamamen ve Kısmen İngilizce Olan Programların Arkasındaki İtici Güçler: Türkiye'deki Öğrencilerin Bakış Açılarının Karşılaştırması**

**Özet:** Yükseköğretimin uluslararasılaşması ve akademik ortak dil olarak İngilizcenin yaygın kullanımı nedeniyle, üniversiteler giderek daha fazla eğitim dili İngilizce (EDİ) olan programlar açmaktadır. Bununla birlikte, EDİ olan programlar uygulamalarında ne monolitiktir ne de yalnızca İngilizcedir. Araştırmalar, bağlamlar arasında EDİ uygulamalarında farklılıkları ortaya koysa da öğrencilerin tamamen ve kısmen EDİ olan programları seçmeye yönelik motivasyonları veya öğrencilerin bu programlara ilişkin inançlarının karşılaştırılması üzerine çok az şey bilinmektedir. Bu çalışma, öğrencilerin motivasyonlarını ve Türkiye'deki tamamen ve kısmen EDİ olan mühendislik programlarında eğitim almanın akademik ve mesleki faydalarına ilişkin inançlarını inceleyerek bu boşluğu gidermeye çalışmaktadır. 198 lisans öğrencisine anket uygulanmış ve tamamen ve kısmen EDİ olan programlardaki öğrencilerin yanıtları karşılaştırılmıştır. Sonuçlar, EDİ olan programları seçme motivasyonları açısından gruplar arasında önemli farklılıklar ortaya çıkarmıştır. Öyle ki, tamamen EDİ olan programlara kayıtlı öğrenciler, kısmen EDİ olan programlardaki öğrencilere kıyasla EDİ'nin mesleki faydaları konusunda daha iyimserlerdir. Öğrencilerin İngilizce yeterliliklerinin öz değerlendirmeleri ve EDİ olan programların akademik faydalarına ilişkin inançları açısından da farklılıklar bulunmuştur. Bulgular, EDİ politikası ve yabancı dil eğitimi açısından tartışılmıştır.

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## 1. Introduction

The internationalization of higher education and the widespread use of English as an academic lingua franca have led to an increase in the number of universities offering English-medium instruction (EMI) programs (Macaro et al., 2018; Rose & McKinley, 2018). EMI can be defined as "the use of English language to teach academic subjects (other than English itself) in countries or jurisdictions where the first language (L1) of the majority of the population is not English" (Macaro, 2018, p. 19). Due to the massive expansion of higher education institutions (HEIs) offering EMI programs in Europe and Asia, EMI has become an "unstoppable train" (Macaro, 2015, p. 7).

The implementation of EMI as a common form of education is often guided by top-down policies that insist on English-only or English-always practices in the classroom (Kirkpatrick, 2017). However, the "E" in EMI should not be taken to represent monolingual, English-only norms (Sahan & Rose, 2021). Rather, there are many variations of EMI implementation across the world (see Curle et al., 2020a, for an overview). In China, for example, the term 'EMI' is often used to refer to bilingual programs (see Jiang, Zhang, & May, 2019; Rose et al., 2020), and researchers have suggested that bilingual education policies allow for the use of translanguaging or multilingual practices in the classroom (Wang & Curdt-Christiansen, 2019). Similar situations of parallel language use have been described in Sweden (Airey, 2012), and research has suggested that multilingual practices are common in EMI programs in Puerto Rica (Mazak & Herbas-Donoso, 2015). While research has acknowledged the variation with which EMI is implemented, there is a lack of research comparing the driving forces behind these various forms of EMI. As such, the nuances behind how and why students choose to enroll in different or particular EMI programs are unknown. Galloway, Kriukow, and Numajiri (2017) have noted that "there is no one-size-fits all approach to EMI and an in-depth understanding of both the context and the needs, and attitudes, of key stakeholders is essential to ensure the successful implementation of EMI." (p. 34). In response to this call for context-specific research, this study investigates the driving forces behind two forms of EMI programs in Turkey: a monolingual form of EMI (full EMI) in which students receive full tuition through English and a bilingual form of EMI (partial EMI) in which students receive instruction in both Turkish and English.

### 1.1. The E in EMI

The decision to implement EMI invariably raises the question of which English should be used for teaching and learning or how much English should be used in the classroom. Addressing these questions through an investigation of students' perceptions at a Swedish university, Kuteeva (2020) noted that English could be conceptualized as a standard variety, lingua franca, or component of translingual practices in EMI settings. Kuteeva demonstrated how these various conceptualizations of English co-exist in an EMI program and concluded that the 'E' in EMI is not static. Rather, "the idea of what is acceptable… can move along the standard – non-standard continuum" (Kuteeva, 2020, p. 298). Macaro (2018) described a multilingual model of EMI, according to which the L1 (or another language) is used alongside English for purposes of teaching and learning. Macaro noted that the multilingual model can either be arranged such that the program includes some classes conducted in English and some in the L1, or such that both English and the L1 are used within the same class.

In contexts where EMI programs are arranged according to the former of Macaro's descriptions (e.g., some classes in English and some in the L1), a distinction might be drawn between full and partial EMI programs, in which full EMI programs are taught entirely through English, but partial EMI programs include courses taught in both English and the local language. An example of partial EMI programs can be found in a study from Japan: Aizawa and Rose (2019) reported that institutional policies at their case study university required courses to be labeled according to whether they were English-only, Japanese-only, or a mix of both languages; however, university policy did not appear to specify the proportion of courses that should be taught in English and/or Japanese for a particular degree program. In Turkey, where the current study was conducted, partial EMI programs are defined as programs in which a minimum of 30 percent of course credits are delivered through English, and the remaining courses are taught in Turkish (see EMI policies in Turkey section).

### 1.2. Motivations for EMI

Although by definition, EMI programs have no explicit language learning aims, English is often cited as a motivation for EMI study (Galloway et al., 2017; Galloway, Numajiri, & Rees, 2020). Studies in Turkey have similarly reported language learning as a motivation for EMI programs (Kırkgöz, 2005; Turhan & Kırkgöz, 2018). Furthermore, Kırkgöz (2005) found that getting better-paid jobs and receiving a globally recognized education were key motivations for choosing to study in EMI programs. Another motivation for choosing to study in an EMI program is to enhance job prospects (Lueg & Lueg, 2015). One study with a sample of 989 students from 18 Turkish universities found that students' strongest motivations for studying through English were a desire to improve their general English level and their discipline-specific English level (Macaro & Akincioglu, 2018).

### 1.3. Benefits and Challenges of EMI

The perceived benefits and challenges of EMI have been examined at the micro, meso, and macro levels. In other words, previous studies have focused on the benefits and challenges from the perspectives of individuals (e.g., students, lecturers, and administrators), institutions, and nations (see Curle et al., 2020a, for an overview). For example, at a case university in China, Hu and Lei (2014) found improved international connections as a national benefit; improved rankings as an institutional benefit; and improved English proficiency, better job prospects, and more opportunities to work abroad as personal benefits of EMI programs. In their large-scale survey examining universities across Europe, Wächter and Maiworm (2014) identified similar benefits: improved international cooperation opportunities (national); improved international profile of the university (institutional); and improved English skills, international mobility, and better employability opportunities, particularly in international and intercultural environments, as personal benefits to students. Similarly, Galloway et al. (2017) found improved English proficiency, better intercultural communicative skills, and increased career prospects as individual benefits to students enrolled on EMI programs in China and Japan. Collectively, these studies suggest that stakeholders seem to perceive the primary perceived benefits of EMI programs to be language learning and better employment opportunities for students.

While language learning has been cited as a benefit of EMI, challenges to implementing EMI programs often include language-related issues such as listening comprehension (Hellekjær, 2010), understanding content presented in English (Dafouz, Camacho, & Urquia, 2014),

understanding technical vocabulary (Evans & Green, 2007; Kırkgöz 2009), and understanding teachers' accents (Tange, 2010). In Galloway et al.'s (2017) study of EMI in China and Japan, language-related challenges were the most commonly reported issues by teachers and students. Evans and Morrison (2011) conducted a large-scale mixed-methods study in Hong Kong and found that EMI undergraduate students experienced writing-related difficulties, such as planning assignments and expressing ideas in English. In the Turkish context, Kamaşak, Sahan, and Rose (2021) analyzed questionnaire data from 498 undergraduate EMI students and found that writing and speaking were the areas with which they had the most difficulty in their EMI classes.

Notably, research on the benefits and challenges of EMI has largely focused on language-related aspects of teaching and learning (e.g., improved proficiency or trouble understanding content in English). Despite growing interest in EMI, the question remains as to how content learning is affected by instruction in English, both in monolingual and bilingual programs. Although research comparing monolingual and bilingual programs is in its infancy, two studies conducted in the Turkish context shed light on learning outcomes in bilingual programs. Sert (2008) administered a questionnaire to 527 undergraduate students and 87 teaching staff members to investigate English language learning and content acquisition through three types of instructional approaches: full EMI, partial EMI, and full Turkish-medium instruction (TMI). The results indicated that full EMI programs were reported as the most effective of the three programs for English language development but raised questions about the effectiveness of full EMI programs for content learning. In a more recent study, Curle et al. (2020b) examined the learning outcomes of 159 undergraduate students on a partial EMI economics program and found that General English proficiency was not a significant predictor of success in EMI while academic success in TMI courses was a significant predictor of success in EMI. In other words, academic learning in EMI courses was found to improve when students' content learning was supported through L1 instruction. Given these findings with respect to learning in full and partial EMI programs in Turkey, the current study aims to investigate the driving forces and student motivations between the two forms of instruction.

### 1.4. EMI Policies in Turkey

As a central agency connected to the Ministry of Education, the Council of Higher Education (*Yükseköğretim Kurulu, YÖK*) regulates HEIs in Turkey. EMI policy and its implementation, including teacher qualifications and language support, are determined by this central organization, and universities must seek the approval of YÖK for opening new departments and recruiting academic staff. According to the regulations, there are three types of medium of instruction at Turkish universities: a) partial instruction in a foreign language, b) full instruction in a foreign language, and c) full instruction in the Turkish language.

Partial EMI programs refer to education in which 30% of the course credits are delivered in English, while in full EMI programs all courses in a degree program are offered in English completely. Although partial EMI programs are a bilingual model of instruction, macro-level policy does not necessarily envision the use of L1 and English simultaneously in the classroom. Rather, in partial EMI programs a minimum of 30% of courses in the curriculum are taught in English only while the remaining courses are delivered in Turkish. Although a policy distinction is made between full and partial EMI programs, student admission and enrollment processes are the same for both forms of education. Students are placed in these

programs based on their score rankings from a national university entrance examination, and full EMI programs attract students with higher scores compared to partial EMI programs.

Although there are no English language requirements for enrollment in EMI programs, full and partial EMI students are obligated to receive a one-year intensive English language preparatory program unless they prove that they have sufficient language proficiency with English language exam scores from national or international exams, or pass the in-house language proficiency test administered by the university. As such, students enrolled in both types of EMI programs receive the same form of language support, although the number of English-medium courses on their programs differs. Given the similarities in language requirements but differences in language of instruction, this study aimed to compare the beliefs and motivations of students in both types of programs by addressing the following research questions:

1. What are full and partial EMI engineering students':
    a. motivations for studying through English?
    b. beliefs about the academic benefits and challenges of studying through English?
    c. beliefs about the professional benefits and challenges of studying through English?
    d. self-reported English proficiency levels?
2. How do full and partial EMI students compare in their motivations, beliefs, and self-reported English proficiency?

## 2. Method

This study employed a quantitative research method to investigate full and partial EMI engineering program students' perspectives regarding their motivation to study through English and the academic and professional benefits and challenges of studying through English. A quantitative research method was used in order to access a large sample of EMI students enrolled at multiple universities through questionnaire data. As Dörnyei (2007) has noted, questionnaires are "relatively easy to construct, extremely versatile and uniquely capable of gathering a large amount of information quickly in a form that is readily processable" (pp. 101-102).

### 2.1. The Participants

Data for this study were collected from students studying engineering through full EMI (n = 98) and partial EMI (n = 100) programs in Turkey. Students were informed about the aims of the study, and they consented to participate in the study before completing the questionnaire. Of the 198 respondents, 150 were male and 48 were female. The gender distribution demonstrates the tendency for higher numbers of male students compared to female students to study engineering in Turkey. Table 1 shows the demographics of participating students.

Table 1.

*Demographics of participants by group*

| Group | Full | | Partial | | Overall | |
|---|---|---|---|---|---|---|
| | *n* | % | *n* | % | *n* | % |
| **Gender** | | | | | | |
| Male | 81 | 82.7 | 69 | 69 | 150 | 75.8 |
| Female | 17 | 17.3 | 31 | 31 | 48 | 24.2 |
| **University affiliation** | | | | | | |
| University A | 16 | 21.6 | 58 | 78.4 | 74 | 37.4 |
| University B | 52 | 100 | 0 | 0 | 52 | 26.3 |
| University C | 3 | 90.9 | 30 | 9.1 | 33 | 16.7 |
| University D | 11 | 68.8 | 5 | 31.2 | 16 | 8.1 |
| Other | 16 | 69.6 | 7 | 30.4 | 23 | 12.5 |
| **Engineering department (sub-branch)** | | | | | | |
| Mechanical | 59 | 59.6 | 40 | 40.4 | 99 | 50 |
| Electrical and Electronics | 15 | 31.2 | 33 | 68.8 | 48 | 24.2 |
| Mechatronics | 1 | 9.1 | 10 | 90.9 | 11 | 5.6 |
| Metallurgical and Materials | 0 | 0 | 10 | 100 | 10 | 5.1 |
| Other | 23 | 76.7 | 7 | 23.3 | 30 | 15.1 |
| **Year of study** | | | | | | |
| First | 23 | 51.1 | 22 | 48.9 | 45 | 22.7 |
| Second | 36 | 72 | 14 | 28 | 50 | 25.3 |
| Third | 28 | 44.4 | 35 | 55.6 | 63 | 31.8 |
| Fourth | 11 | 27.5 | 29 | 72.5 | 40 | 20.2 |

The participant students were studying in 17 different engineering programs at 15 different universities across Turkey. Half of the students (n=99, 50%) were studying Mechanical Engineering, followed by Electrical and Electronics Engineering (n = 48, 24.2%). The third and fourth most commonly enrolled engineering programs were Mechatronics, and Metallurgical and Materials (n=11, 5.6% and n=10, 5.1%, respectively). The remaining 30 students (15.1%) were enrolled in 14 other engineering branches. The participants were in their first (n=45, 22.7%), second (n=50, 25.3%), third (n=63, 31.8%), and fourth (n=40, 20.2%) year of study.

## 2.2. Data Collection Instrument

Data for this study were collected using an online questionnaire. Students enrolled in full and partial EMI engineering programs were invited to respond to the questionnaire. The questionnaire included 50 Likert-type scale items and questions about demographic information. The questionnaire consisted of four sub-scales including 1) motivations to study on an EMI engineering program (14 items); 2) academic benefits and challenges of studying engineering through English (20 items); 3) professional benefits and challenges of studying engineering through English (12 items); and 4) self-reported English proficiency pertaining to each sub-skill—reading, writing, listening, and speaking (4 items).

The questionnaire was developed based on instruments used in previous studies investigating students' beliefs in EMI (Evans & Morrison, 2011; Macaro & Akincioglu, 2018). The questionnaire items were presented in both Turkish and English to increase the

comprehensibility for participants. After the items were prepared in English, the first author translated items from English to Turkish, and the second author back-translated items to English to verify the accuracy of the translation.

As previously stated, the questionnaire items were developed from existing studies found in the literature. In order to further ensure the reliability of the data collection tool, a pilot survey was administered to 85 engineering students prior to the main data collection. According to the Cronbach's alpha reliability results, acceptable values were obtained for the overall scale ($\alpha$= 0.911) and its sub-scales (motivations to study an EMI engineering program, $\alpha$= 0.803; academic benefits and challenges of studying through EMI, $\alpha$= 0.862; professional benefits and challenges of studying through EMI, $\alpha$= 0.873). Furthermore, the pilot questionnaire included open-ended items asking for participants' feedback, and the questionnaire was revised accordingly (see Sahan & Şahan, 2021).

### 2.3. Data Collection and Analysis

The questionnaire was made available online via a link which directed students to the questionnaire. The link was shared online on social media and distributed to partial and full EMI students. To reach more participants, the researchers contacted EMI engineering lecturers working at multiple universities to share the link with their students.

Questionnaire data were analyzed using descriptive and inferential statistics, and the data were checked for normality before data analysis. The analysis of participants' demographic information is presented using frequencies and percentages. Independent samples t-tests were used to compare the means of the partial and full EMI students' responses to the questionnaire items.

## 3. Findings

### 3.1. Motivations to Study through English

Students' motivations for studying in partial or full EMI engineering programs were investigated in the first part of the questionnaire (14 items) through a 5-point Likert type scale (ranging from 1 'Strongly disagree' to 5 'Strongly agree'). Independent samples t-tests were performed to see whether full and partial EMI students differed in their motivations. Table 2 compares the means pertaining to the two groups. As can be seen in Table 1, both groups reported the same top motivations including the belief that studying through English was more prestigious (Item 5) and the desire to improve their English skills (Item 6), keep up with technological developments in their particular fields (Item 8), find a job more easily (Item 10), find higher paid jobs (Item 11), and work for international companies (Item 12). These results suggest that both full and partial EMI students were motivated to learn English so that they could obtain professional benefits in their careers.

Table 2.

*Comparison of full and partial EMI students' motivations*

| **I chose to study in an English-language engineering department because...** | **Full** (n =98) | | **Partial** (n=100) | | | |
|---|---|---|---|---|---|---|
| **Items** | *Mean* | *SD* | *Mean* | *SD* | *t* | *p* |
| 1. My university exam ranking was high. | 3.65 | 1.23 | 3.29 | 0.99 | -2.295 | **.023*** |
| 2. My family wanted me to study engineering in an English-language department. | 2.92 | 1.33 | 2.97 | 1.28 | .278 | .781 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 3. My high school teachers told me to do so. | 2.43 | 1.20 | 2.61 | 1.20 | 1.065 | .288 |
| 4. I thought I would benefit from international student exchange programs like Erasmus more easily. | 3.42 | 1.32 | 3.52 | 1.11 | .587 | .588 |
| 5. I thought that studying at an English-language engineering department would be more prestigious. | 4.55 | 0.78 | 4.15 | 0.86 | -3.451 | **.001*** |
| 6. I wanted to improve my English skills. | 4.24 | 0.98 | 4.21 | 0.96 | -.254 | .800 |
| 7. I wanted to access engineering resources in English. | 4.27 | 1.00 | 4.03 | 1.01 | -1.647 | .101 |
| 8. I thought that I could keep up with the technological developments in my field more easily. | 4.36 | 0.89 | 4.20 | 0.85 | -1.270 | .206 |
| 9. I thought that I could communicate with professional colleagues abroad. | 4.21 | 0.90 | 3.91 | 0.99 | -2.268 | **.024*** |
| 10. I thought that I would be able to find a job more easily. | 4.63 | 0.68 | 4.41 | 0.67 | -2.352 | **.020*** |
| 11. I thought that I would be able to find higher paid jobs. | 4.37 | 0.80 | 4.07 | 0.87 | -2.500 | **.013*** |
| 12. I thought that it would be easier for me to work in international companies. | 4.57 | 0.69 | 4.22 | 0.73 | -3.476 | **.001*** |
| 13. I wanted to work abroad. | 3.77 | 1.14 | 3.70 | 1.24 | -.387 | .699 |
| 14. I wanted to continue with graduate education (e.g., MA, PhD). | 3.35 | 1.15 | 3.66 | 1.06 | 1.996 | **.047*** |

Independent samples t-tests were conducted to determine whether there were any statistical differences between full and partial EMI students in terms of their motivations to choose to study through English. The results revealed significant differences with respect to seven items. First, full EMI students (M = 3.65, SD = 1.23) were more motivated by their university exam ranking (Item 1) than partial EMI students (M =3.29, SD = 0.99), t (196) = -2.295, p = 0.023. Second, full EMI students (M = 4.55, SD = 0.78) were more likely than partial EMI students (M = 4.15, SD = 0.86) to report that studying through English was more prestigious (Item 5), t (196) = -3.451, p = 0.001. Third, partial EMI students (M = 3.66, SD = 1.06) were more motivated to continue with their graduate education (Item 14) than full EMI students (M = 3.35, SD = 1.15), t (196) = -1.996, p = 0.047.

The remaining four items were related to professional motivations. Full EMI students (M = 4.21, SD = 0.90) were more likely than partial EMI students (M = 3.91, SD = 0.99) to report that studying through English could help them communicate with their professional colleagues abroad, t (196) = -2.268, p = 0.024. Full EMI students were also more likely than partial EMI students to report that EMI would help them find a job more easily (M = 4.63, SD = 0.68 and M = 4.41, SD = 0.67, respectively, t (196) = -2.352, p = 0.020); find a higher paid job (M = 4.37, SD = 0.80 and M = 4.07, SD = 0.87, respectively, t (196) = -2.500, p = 0.013); and work for international companies (M = 4.57, SD = 0.69 and M = 4.22, SD = 0.73, respectively, t (196) = -3.476, p = 0.001).

### 3.2. Academic Benefits and Challenges of EMI

The second part of the questionnaire explored participants' beliefs with respect to the academic benefits and challenges of studying engineering in English. Among the top-ranked benefits of EMI, both full and partial EMI students reported that they were improving their English skills (Item 9) and learning engineering terminology better in EMI classes compared to Turkish-language classes (Item 10). Students in both groups also reported having enough resources in English (Item 18). Table 3 shows the academic benefits and challenges of studying through English as reported by both groups.

Table 3.

*Comparison of full and partial EMI students' beliefs in terms of academic benefits and challenges*

| **I study in an English-language engineering department and I think…** | **Full** (n =98) | | **Partial** (n=100) | | | |
|---|---|---|---|---|---|---|
| **Items** | *Mean* | *SD* | *Mean* | *SD* | *t* | *p* |
| 1. University teachers in my department have the necessary language skills to teach in English. | 3.64 | 0.96 | 3.20 | 1.13 | -2.978 | **.003*** |
| 2. University teachers in my department are more qualified than the teachers in Turkish-language departments. | 3.48 | 1.12 | 3.21 | 1.07 | -1.732 | .085 |
| 3. University teachers in my department simplify the content because the language of instruction was English. | 2.24 | 1.14 | 2.51 | 1.11 | 1.661 | .098 |
| 4. Compared to Turkish-language lessons, I receive a higher level of education in English. | 3.36 | 1.13 | 3.11 | 1.06 | -1.584 | .115 |
| 5. It makes me feel distinguished. | 3.23 | 1.14 | 3.00 | 1.18 | -1.424 | .156 |
| 6. It makes me feel like I am part of an elite group. | 2.84 | 1.31 | 2.54 | 1.21 | -1.659 | .099 |
| 7. The English-language lessons are more interesting than Turkish-language lessons. | 2.90 | 1.19 | 2.74 | 1.04 | -.996 | .321 |
| 8. The English-language lessons are more motivating than Turkish-language lessons. | 2.74 | 1.05 | 2.66 | 1.11 | -.552 | .581 |
| 9. I am improving my English skills. | 4.01 | 0.94 | 3.78 | 1.02 | -1.653 | .100 |
| 10. I am learning engineering terms better in my English-language lessons compared to Turkish-language lessons. | 3.66 | 1.13 | 3.57 | 1.17 | -.571 | .568 |
| 11. It is easier to understand conceptual knowledge in my English lessons compared to Turkish lessons. | 2.83 | 1.21 | 2.97 | 1.15 | .855 | .393 |
| 12. The academic standards in my department are lower because the language of instruction is English. | 1.84 | 0.96 | 2.30 | 0.95 | 3.416 | **.001*** |
| 13. If the language of instruction were Turkish, the difference in students' academic achievement would be less in my department. | 3.16 | 0.97 | 3.00 | 1.06 | -1.128 | .261 |
| 14. If the language of instruction were Turkish, I could learn the subject material in more detail. | 3.19 | 1.29 | 3.25 | 1.27 | .309 | .758 |
| 15. I have no difficulty understanding the subject material in English. | 3.57 | 1.16 | 3.55 | 1.16 | -.130 | .897 |
| 16. I spend more time on my studies because the language of instruction in my department was English. | 3.28 | 1.27 | 3.46 | 1.09 | 1.101 | .272 |
| 17. I have enough resources in English. | 3.97 | 0.95 | 3.55 | 1.13 | -2.826 | .005 |
| 18. The university has enough resources in English. | 4.05 | 0.90 | 3.35 | 1.10 | -4.888 | **.000*** |
| 19. If the language of instruction were Turkish, I could participate more actively in the lessons. | 3.12 | 1.29 | 3.12 | 1.23 | -.014 | .989 |
| 20. In my English-language lessons, my teachers provide explanations in Turkish. | 3.51 | 1.05 | 3.76 | 0.92 | 1.781 | .076 |

Independent samples t-tests were performed to determine whether there were any significant differences between student groups. The results revealed significant differences with respect

to three items. First, full EMI students (M = 3.64, SD = 0.96) were more likely than partial EMI students (M = 3.20, SD = 1.13) to report that teachers in their departments had the necessary language skills to teach in English, t (196) = -2.978, p = 0.003. Second, partial EMI students (M = 2.30, SD = 0.95) were more likely to report that the academic standards in their departments were lower because the language of instruction was English compared to the full EMI group (M = 1.84, SD = 0.96), t (196) = 3.148, p = 0.001. Third, full EMI students (M = 4.05, SD = 0.90), were more likely than partial EMI students (M = 3.35, SD = 1.10) to report that their universities had enough resources in English, t (196) = -4.888, p < 0.001.

### 3.3. Professional Benefits and Challenges of EMI

The third part of the questionnaire asked students to report their beliefs with respect to the professional benefits and challenges of studying in an EMI engineering department. According to the results, students in both groups believed that they would have an advantage over graduates from Turkish-language departments in terms of finding jobs (Item 1), would be more confident as engineers (Item 6), would find jobs at international companies more easily (Item 7), would be more likely to be sent to international professional fairs (Item 8), and that the engineering terms they learn in English would help them in their jobs (Item 9).

Table 4.

*Comparison of full and partial EMI students' opinions in terms of professional benefits and challenges*

| **As an English-language engineering department student, I think…** | **Full** (n =98) | | **Partial** (n=100) | | | |
|---|---|---|---|---|---|---|
| **Items** | *Mean* | *SD* | *Mean* | *SD* | *t* | *p* |
| 1. I will have an advantage over graduates from Turkish-language departments in terms of finding a job. | 4.44 | 0.77 | 4.02 | 0.80 | -3.733 | **.000*** |
| 2. I will be a better engineer than graduates from Turkish-language departments. | 3.60 | 1.08 | 3.38 | 0.98 | -1.513 | .132 |
| 3. I will earn a higher salary than graduates from Turkish language departments. | 3.80 | 0.91 | 3.43 | 1.00 | -2.698 | **.008*** |
| 4. I will be more likely to be promoted in my job than graduates from Turkish-language departments. | 4.01 | 0.89 | 3.74 | 0.85 | -2.186 | **.030*** |
| 5. My employer will value my work. | 3.67 | 0.81 | 3.43 | 0.96 | -1.932 | .055 |
| 6. I will be more confident as an engineer. | 4.10 | 0.81 | 3.73 | 0.94 | -2.985 | **.003*** |
| 7. I will find a job at an international company more easily. | 4.47 | 0.66 | 3.86 | 0.85 | -5.610 | **.000*** |
| 8. My company will be more likely to send me to international professional fairs. | 4.50 | 0.58 | 4.15 | 0.73 | -3.734 | **.000*** |
| 9. The engineering terms that I learn in my English-language lessons will help me in my future job. | 4.38 | 0.70 | 4.20 | 0.78 | -1.690 | .093 |
| 10. I will not understand engineering concepts as well as my colleagues who graduated from Turkish-language departments. | 2.29 | 1.09 | 2.47 | 1.03 | 1.221 | .223 |
| 11. I will actively use English on a daily basis in my job. | 3.33 | 0.93 | 3.20 | 0.96 | -.941 | .348 |
| 12. I will have difficulty expressing engineering terms in Turkish while communicating with other employees who do not know English. | 3.67 | 1.02 | 2.93 | 1.09 | -4.959 | **.000*** |

Independent samples t-tests revealed significant differences between groups with respect to seven items. Although both groups ranked items 1, 6, 7, and 8 highly, significant differences were found between groups, with full EMI students more likely than partial EMI students to report that they would have an advantage finding jobs (M = 4.44, SD = 0.77 and M = 4.02, SD = 0.80, respectively, t (196) = -3.733, p < 0.001); be more confident as engineers (M = 4.10, SD = 0.81 and M = 4.73, SD = 0.94, respectively, t (196) = -2.985, p = 0.003); find jobs at international companies (M = 4.47, SD = 0.66 and M = 3.86, SD = 0.85, respectively, t (196) = -5.610, p < 0.001); and be sent to international professional fairs (M = 4.50, SD = 0.58 and M = 4.15, SD = 0.73, respectively, t (196) = -3.734, p < 0.001).

In addition to these four items, full EMI students were also more likely than partial EMI students to report that they would earn a higher salary (M = 3.80, SD = 0.91 and M = 3.43, SD = 1.00, respectively, t (196) = -2.698, p = 0.008) and be promoted in their jobs (M = 4.01, SD = 0.89 and M = 3.74, SD = 0.85, respectively, t (196) = -2.186, p = 0.030) compared to graduates from Turkish-language departments. While the findings reported above pertain to benefits of EMI, one significant difference found in relation to a challenge associated with studying in an EMI engineering program. Full EMI students (M = 3.67, SD = 1.02) were more likely to believe that they would have difficulty expressing engineering terms in Turkish compared to partial EMI students (M = 2.93, SD = 1.09), t (196) = -4.959, p < 0.001.

### 3.4. Perceived English Proficiency

In the last part of the questionnaire, students were asked to self-assess their English language proficiency with respect to the four skills of reading, writing, speaking, and listening. Students reported their proficiency on a 5-point Likert-type scale from beginner (1) to advanced (5). Both groups rated their reading skills highest and their speaking skills lowest. Table 5 illustrates the mean scores of each language skill for both groups.

Table 5.
*Comparison of full and partial EMI students' perceived language proficiency*

| | **Full** (n =98) | | **Partial** (n=100) | | | |
|---|---|---|---|---|---|---|
| **Language Skills** | *Mean* | *SD* | *Mean* | *SD* | *t* | *p* |
| Reading Skills | 4.22 | 0.75 | 3.86 | 0.79 | -3.318 | **.001*** |
| Writing Skills | 3.82 | 0.83 | 3.54 | 0.92 | -2.226 | **.027*** |
| Speaking Skills | 3.34 | 1.04 | 3.34 | 0.96 | .023 | .982 |
| Listening Skills | 3.85 | 0.99 | 3.60 | 0.97 | -1.771 | .078 |

Independent samples t-tests were conducted to investigate whether students in full and partial EMI programs differed in their self-assessed language proficiency. As can be seen in Table 5, significant differences were found with respect to reading and writing skills but not listening and speaking skills. Full EMI students self-assessed their reading (M = 4.22, SD = 0.75) and writing skills (M = 3.82, SD = 0.83) higher than partial EMI students (M = 3.86, SD = 0.79 and M = 3.54, SD = 0.92, respectively), reading: t (196) = -3.318, p = 0.001 and writing: t (196) = -2.226, p = 0.027.

## 4. Discussion

This study compared the driving forces behind full and partial EMI programs in Turkey through an examination of EMI engineering students' motivations, beliefs, and self-assessed English proficiency. The findings revealed differences between students in partial and full

EMI programs with respect to the perceived academic and professional benefits of EMI, with more differences found between the two groups in relation to the professional benefits. These findings have confirmed the results of studies conducted in Asian and European contexts, which suggest that students enroll in EMI programs in order to improve their English skills and raise their job prospects (Galloway et al., 2017; Galloway et al., 2020; Wächter & Maiworm, 2014).

Full EMI students were more likely than partial EMI students to expect that studying through English would help them in terms of finding jobs, including jobs at international companies and jobs with higher salaries. They were also more likely to report that studying in English would increase their confidence as engineers and increase the likelihood of them receiving promotions in their careers. These results with respect to perceived professional benefits are not surprising in that EMI is often linked to discourses of internationalization and a globalized job market (De Costa, Green-Eneix, & Li, 2020; Hultgren, 2014). However, these findings suggest that students enrolled in full EMI programs are more optimistic about the professional benefits of EMI than students in partial EMI programs. This finding confirms that EMI programs should not be considered monolithic (see Macaro, 2018). Rather, students enrolled in different types of EMI programs (e.g., partial and full) may perceive different levels of professional benefits. However, the professional outcomes associated with different types of EMI programs remain unknown, and future research is needed in this area.

Moreover, full EMI students were more motivated to study through English for professional reasons such as finding higher-paid jobs, communicating with colleagues abroad, and working for international companies than partial EMI students. Interestingly, partial EMI students were more motivated to study through English in order to continue onto postgraduate education. This may suggest that students in partial EMI programs saw their bilingual undergraduate experiences as a bridge to postgraduate study in English. Previous studies in the Turkish context have suggested that EMI courses result in less depth of content learning compared to TMI courses (Kırkgöz, 2014; Sert, 2008). In addition, a recent study found that "EMI success is better augmented by students taking some courses through their native language alongside EMI courses" (Curle et al., 2020b, p. 1). For students wishing to pursue graduate studies, partial EMI programs might bridge the transition to graduate studies by contributing to better content learning outcomes. However, more research is needed in this area, for although Curle et al. (2020b) found that TMI courses may support learning in EMI programs, their study did not compare learning outcomes on full and partial EMI courses. Nonetheless, the findings of this study raise the question of why students in full EMI programs may be less motivated to pursue postgraduate studies in English than their peers in partial EMI programs, especially considering that full EMI students tend to be more academically successful, as measured by their university entrance exam ranking (discussed below).

With respect to motivations for studying through English, this study found that full EMI students were more motivated by their university entrance exam scores than partial EMI students were. This might be due to the fact that elite universities in Turkey have historically taught (entirely) through English (Selvi, 2014), and these universities would require top university entrance exam scores. Even beyond elite universities, full EMI programs typically admit students with higher exam scores than partial EMI programs (ÖSYM, 2020). Students enrolled in full EMI programs may therefore have received higher scores on the university entrance exam and consider this to be a greater factor in determining their decision to study through English, compared to students in partial EMI programs. Moreover, this finding with

respect to exam scores may be related to another significant difference between groups: full EMI students were more likely than partial EMI students to report that studying through English was more prestigious than studying through Turkish. This finding seems to echo the sociocultural context in Turkey, where EMI is a common form of education at top-ranked universities. These findings nevertheless raise questions about access and choice in relation to EMI. While Macaro and Akıncıoğlu (2018) have noted that enrolment is not a "completely free choice" since "a number of factors can influence students' ability to enroll" (p. 258), these findings suggest that—rather than actively choosing to study in EMI programs—some students may enroll in EMI programs because of their relatively high exam scores or because an equivalent TMI program does not exist. In this context of exam-based admissions, policymakers and university leaders should be careful not to promote EMI programs at the expense of L1-medium instruction.

Moreover, with respect to the quality of full and partial EMI programs, partial EMI students thought that the academic standards of their programs were lower because the language of instruction was English compared to full EMI students. Partial EMI students were also less likely to report having enough English resources in their university settings. In relation to the discussion above, these results might be related to the fact that full EMI programs generally exist in elite universities, where students with higher scores are admitted, teachers are hired based on higher recruitment standards, and universities generally have a wider range of resources available. Similarly, full EMI students reported that their teachers were more qualified in terms of their English language skills compared to partial EMI students. Differences in lecturers' English proficiency, as perceived by students, could be due to differences in hiring practices across universities or because of professional opportunities available. Lecturers in full EMI programs could have better language competencies because they teach all of their classes in English, resulting in more practice teaching through a foreign language than lecturers in partial EMI programs.

Finally, this study investigated the self-assessed English language proficiency of students in full and partial EMI programs. Full EMI students reported their reading and writing skills to be significantly higher than partial EMI students. This might be because full EMI students read more English materials and write more assignments in English, since they receive their entire tuition in English. These findings may suggest that students in partial EMI programs require additional language support to develop their reading and writing skills. Although they are enrolled in bilingual programs, they may be at a disadvantage in terms of understanding English-language texts compared to their peers in full EMI programs. However, no significant differences were found between groups with respect to listening or speaking, and both groups ranked speaking as their weakest skill. This finding is in line with previous research which has found that EMI students in Turkey experience difficulty with productive skills in English (Kamaşak, Sahan, & Rose, 2021), and it suggests that both groups would benefit from additional support targeted at discipline-specific communicative skills.

## 5. Conclusion

As the number of EMI programs continues to grow at universities in Turkey and beyond, policymakers and program administrators should carefully consider the type of EMI program they decide to implement. EMI is not necessarily English only. This study has attempted to demonstrate the ways in which students perceive differences between full and partial EMI programs. Students with higher university exam scores may have preferred to study in full EMI programs since they thought English programs were more prestigious. However, EMI

should not necessarily be promoted at the expense of Turkish-medium and bilingual programs. In other words, quality education and prestige of the departments should be built upon various factors that provide students with rich learning experiences, not based only on the medium of instruction.

Students in full and partial EMI programs might have different language needs, and language support should be targeted in line with students' particular needs. Both student groups reported their speaking skills as the weakest language area, followed by listening skills. As such, English preparatory programs could revisit their curriculum to include more activities to improve students' speaking and listening skills. However, this study used a self-reported measure of English proficiency; future research could employ direct measures of English proficiency to capture more accurately the differences in English language skills, which may exist between students in both groups.

There are two major limitations of this study. First, the data were based on a questionnaire only. Although the questionnaire was deemed comprehensive, qualitative data collection techniques may have resulted in more nuanced data. Classroom observations may help to better understand the role of English in full and partial EMI classrooms. Second, although students from various departments and universities were invited to complete the online questionnaire, the number of participants was limited and some universities and departments were represented more in the data set than others were. This unequal distribution of participants with respect to their universities and departments may affect the generalizability of the results**.** In addition to these limitations, including teachers' perspectives in future studies could help understand the driving forces behind bi- and monolingual EMI programs more critically. While this study compared students in partial and full EMI programs, future research could examine the challenges and perceptions of teachers in full and partial EMI programs. The results of such studies could be useful in providing targeted professional development programs to teachers in partial or bilingual EMI programs, which may address the differences reported by students in terms of teacher competencies found in this study.

## Note on Ethical Issues

This study is exempt from the current research requirement in Turkey for ethics committee approval, which came into effect in February 2020, since the data for this study were collected between May and August 2019. To ensure ethical principles were met, we informed participants about the aims of the study and obtained their consent prior to administering the questionnaire items. Participation in this study was voluntary, and participants were ensured confidentiality.

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