

## Uncovering the Reflections of English Medium Instruction in Engineering Graduates' Career\*

Mehmet ALTAY\*\*

Nalan ERÇİN\*\*\*

**Abstract.** English Medium Instruction (EMI) is increasingly recognized as an intriguing phenomenon for researchers in not only Higher Education (HE) but also professional context. Although engineering is one of the most appealing field in this regard, little has been done to investigate the influence of EMI over graduates' career. Two types of EMI, partial and full, applied in Turkey were compared in this current study to determine the market type addressed by the organizations for which engineering graduates work (n=76). A second purpose with this comparison was to make inferences from their reflections over the role of *English for learning* in their being employed. Findings showed that being a full or partial EMI graduate do not indicate a significant difference in the type of market addressed as well as in being employed. The last aim of the study was to identify the types of proficiency tests in English the graduates of different engineering subjects were required to take, if any. It was seen that there is a significant difference in the testing procedure depending on the subjects.

**Keywords:** English Medium Instruction (EMI), full EMI, graduates of engineering, partial EMI.

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\*\* Orcid ID: <https://orcid.org/0000-0001-7227-5685>, Assist. Prof. Dr., Kocaeli University, English Language Teaching, Turkey, [mehmet.altay@kocaeli.edu.tr](mailto:mehmet.altay@kocaeli.edu.tr)

\*\*\* Orcid ID: <https://orcid.org/0000-0001-7794-0437>, Lect., Kocaeli University, Foreign Languages Education, Turkey, [nalan.ercin@gmail.com](mailto:nalan.ercin@gmail.com)

## 1. INTRODUCTION

Research in the medium of instruction (MOI) has received much attention in the past two decades. Even though a plurilingual educational setting is recognized as being ideal (Doiz, Lasagabaster & Sierra, 2012, p. xvii), English Medium Instruction (EMI) in Higher education (HE) has become a central domain in global setting (Dearden & Macaro, 2016; Wächter & Maiworm, 2014). As defined by Macaro (2018, p. 19), EMI is ‘the use of the 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.’ Despite this fact, it is common knowledge that EMI is widespread especially in the Asian countries circle, and it can be attributed to their being ex-colonializations. Still, the rapid expansion of EMI is not restricted with these countries. Many others, including European countries, which are traditionally labeled as English as a Foreign Language countries, also put emphasis on instruction in English. Standing in line with other European countries, Turkey is one of those who have a relatively longer background of EMI.

### Background of EMI in Turkey

The earliest example of HE in another language than the L1 of the students in Turkey dates back to the foundation of the first division of medicine in 1827 (Marmara University, 2018). French was the MOI then to catch up with the western innovations in medicine. Over three decades after the use of French as MOI, EMI was initiated in 1863 by Robert College. Today known as Bogazici University, this school is the oldest American school established abroad (Minifie, 1998).

With the emergence of the Turkish Republic, numerous reform steps were put forward in language education as well. Further EMI subjects took their part in several other universities. However, it was not until the early 2000s that Turkish education witnessed a dramatic increase in the number of EMI subjects in tertiary level (see West, Guven, Parry, & Ergenekon, 2015). While some of these are fully EMI, the others offer a “multilingual model” (Macaro, 2018) at which students take courses partially in English. Undoubtedly, the former has always drawn much of the researchers’ attention. Having said that, however, numerous studies have also reported the implementation of the latter around the world so far (Chou, 2018; Malmström, Pecorari & Gustafsson, 2016; Pecorari, Shaw, Irvine & Malmström, 2011; Phuong & Nguyen, 2019; Pun & Macaro, 2019; Rose, Curle, Aizawa & Thompson; Simbolon, 2017; Wu, 2006).

Having both full and partial models, EMI in Turkish context has been investigated in several studies over these two decades (i.e. Kirkgoz, 2005, 2009, 2014; Soruç, Dinler & Griffiths, 2018; Soruç & Griffiths, 2018, Karakas, 2016; Turhan & Kirkgöz, 2018). A great deal of the studies concentrate around the comparison of full EMI and partial EMI subjects, usually in terms of academic success; perceptions of the effectiveness of EMI when compared to Turkish medium instruction (TMI); and the impact of mother tongue over success in EMI. Among all academic disciplines, science and engineering holds the top second ranking of having departmental EMI lessons (West et al., 2015) and thus a considerable proportion of the research is conducted in this setting. The investigations

into these areas are still ongoing; however, it is evident that EMI in Turkey bears even more alternatives to be analyzed.

### **Factors in taking an EMI education**

Factors contributing to the global expansion of EMI are often student-centered. Some of the prominent examples are related to career goals (Huang, 2011), higher proficiency in English (Galloway, Kriukow & Numajiri, 2017), and desire to experience an international academic experience (Soruç & Griffiths, 2018). EMI is more common in certain scientific fields at HE level and among these, engineering has always been the foremost example all around the world (e.g. Vinke, 1995; Klaassen, 2001; Ball & Lindsay, 2013) since certain subjects of it is more open for development.

Local in the Turkish case, a number of studies mostly highlighted: (a) the intellectual development of students through using the target language (Turhan & Kirkgoz, 2018; Atik, 2010); (b) success at work (Arkin, 2013); gaining social prestige (Atik, 2010). Parallel to the global popularity of EMI in engineering, the majority of the studies in Turkey concentrates on the same domain (e.g. Kirkgöz, 2005; Başibek, Dolmacı, Cengiz, Bür, Dilek & Kara, 2014; Soruç & Griffiths, 2018; Soruç, Dinler & Griffiths, 2018; Turhan & Kirkgöz, 2018)

It is evident that a great many of the studies aiming to identify the reasons why EMI is preferred concentrate overwhelmingly on personal or academic implications. Although students' professional career is not a less significant a factor of EMI preference, little research has been conducted to observe this phenomenon. Furthermore, even less has been done in order to put shed on the effectiveness of the EMI types; whether being full or partial, on occupation. Therefore, the initial purpose of this current study is to analyze the findings with this respect. A second aim is to compare subject differences, if any, in being exposed to proficiency tests of English during job applications. Having a relatively larger number of graduates over many decades in Turkey as well as a wide variety of academic subjects within itself, engineering represents an ideal division for these objectives.

This current research seeks answers for the following questions:

- (1) Is there a significant relationship between the EMI type of the graduated subject and the market type of the company graduates work for?
- (2) Is there a significant relationship between the EMI type of the graduated subject and the graduates' views over its effectiveness in their being hired?

A third concern of the study is towards the following hypothesis:

H<sub>0</sub>: There is no statistically significant difference between the type of the graduated EMI subject and the type(s) of proficiency test in English taken during job application.

## 2. METHOD

### Context of the study

EMI universities in Turkey are two-fold as they offer either full or partial EMI. In this study, one example for each determines the context. A state university with approximately 45,000 students stands for the former, yet another state university with over 50,000 students represents the partial EMI, or 'Multilingual Model' of EMI as coined by Macaro (2018). As in most other EMI institutions at HE level, engineering is one of the most prominent divisions of these two universities in Turkey. Therefore, the data came only from this EMI context in order to run a consistent comparison.

### Participants

The division of engineering of the former university currently has 11 subjects, all of which are full EMI. However, some of these have recently been founded and thus they do not have graduates for the time being. On the other hand, the partial EMI university has 13 subjects and not all offer EMI courses of any type. With this in mind, the common subjects of both universities are determined as Civil Engineering, Electronics Engineering, and Mechanical Engineering. 38 participants amongst the graduates of both universities, hence 76 in total, contributed to this research with their consent. Stratified sampling is conducted to make a subject-wise comparison available. The full EMI group consists of 15 graduates from Civil Engineering, 11 from Electronics, and 12 from Mechanical Engineering. Parallel to this group, the partial EMI group consists of 15 graduates from Civil Engineering, 11 from Electronics, and 12 from Mechanical Engineering.

### Data collection

An online survey was prepared and delivered to the EMI graduates. It consisted only of the consent check and three descriptive survey items each with options to obtain categorical variables (see the Appendix please). The survey was directed in the native language of the participants for their comfort in responses. Before directing the survey, an expert in EMI provided the content validity (Dörnyei, 2007) of the survey items through feedback. Ethics committee approval for this study was obtained from the Kocaeli University Rectorate Ethics Committee, dated 09/07/2020 and numbered 2020/09.

### Data analysis

All quantitative variables obtained from the survey formed the descriptive statistics in the computing software R. The first survey item aims to determine if the company for which the graduates work serves in: (a) the local market only, (b) global market only, or (c) both local and global markets. The second item is in Likert Scale of five options and interrogates if the graduates think the EMI subject that they graduated contributed them while being hired. The last item seeks for the type of the proficiency test in English which the graduates were required to take, if any, during their job applications. To run the comparative analyses of the data, "Chi-Square test" for independence was used since all the variables were categorical. As being a commonly used "non-parametric test" (Dörnyei,

2007), no further psychometric analysis is presumed to be met and the following data in the contingency tables were obtained.

### 3. RESULTS

#### Survey item #1

With this item, it was aimed to investigate which of the market types the organizations of the samples address. Headquartered in two prominent industrial areas of Turkey, these two EMI universities subject to this current study with respect to their graduates from the engineering divisions are also known to offer immense job opportunities directly or indirectly thanks to their locations. The cities of these two universities are located in eligible conditions for transportation of all sorts for trades and industry. Taking this into account, the companies for which the graduates work varies in accordance with the market that they address as in the following table.

Table 1

*EMI Type of the Graduated Subject and the Market Addressed in Profession*

EMI Type	Market Type		
	Global-only	Local-only	Both global and local
Full EMI	3	12	23
Partial EMI	2	13	23

$\chi^2 (2, N = 76) = 0.24, p = 0.886$

As seen in Table 1, there is not a significant difference between the market types that the companies of the EMI graduates address ( $p > 0.05$ ). Global-only and local-only companies are in balance concerning the number of the companies where both full and partial EMI graduates work. Despite the fact that EMI graduates can be presumed as candidates for more globalized companies, the findings indicate that they proportionally work for local-only companies more. Besides, a hybrid type of both global and local companies is overwhelming when compared to the other types.

#### Survey item #2

Irrespective of its not being among the ex-colonized countries, it is a common fact that *learning English* has always been regarded as a must to have a good professional career. What is more, *English for learning* is often accepted as a further alternative to raise the opportunities. Therefore, the participants were directed a second question concerning whether they are of the opinion that the EMI subject they graduated from contributed to their being hired.

Table 2

*EMI Type of the Graduated Subject and its Contribution to Being Hired*

EMI Type	Contribution of Graduated Subject				
	Totally disagree	Disagree	Somewhat Agree	Agree	Totally agree
Full EMI	4	5	13	10	6
Partial EMI	9	6	14	6	3

$$\chi^2 (4, N = 76) = 4.051, p = 0.399$$

Table 2 depicts that there is not a significant difference in the views of full EMI graduates and partial EMI graduates ( $p > 0.05$ ). Approximately one-third of each group somewhat agrees that the subject contributed. The majority of the remaining participants from the partial EMI university tend to be more at the negative portion while the case is vice versa among full EMI graduates.

**Survey item #3**

As previously mentioned, the graduate participants were asked a final question investigating what type of a proficiency test in English they were required to take, if any, before being hired. Since the aim with this question here was not to compare partial and full EMI graduates but their subjects, Table 3 below depicts a comparative model for Civil Engineering, Electronics Engineering, and Mechanical Engineering.

Table 3

*Type of the Graduated Subject and Proficiency Test before Being Hired*

Subject	Contribution of Graduated Subject			
	Written-only	Spoken-only	Both written and spoken	None at all
Civil Engineering	0	3	3	24
Electronics Engineering	4	7	5	6
Mechanical Engineering	2	6	6	10

$$\chi^2 (6, N = 76) = 17.899, p = 0.006$$

Although the comparison of being partial or full EMI graduate did not reveal some significant indications in the previous studies, subjects of the graduates seem to bear a significant difference ( $p < .05$ ) in the procedure of taking proficiency tests in English. The graduates of Electronics Engineering can be said to have a normal distribution in all types. Whereas the most striking findings come from civil engineering as 80% of the graduate participants declared they did not take any proficiency test at all.

## 4. DISCUSSIONS

### Results and Discussions

With this current study, it was aimed to put shed on some of the reflections of being an EMI graduate in profession. The first concern with this respect was the market addressed by the companies for which the EMI graduates work, and whether taking a partial or full EMI in HE matters accordingly was the focus. A second point focused on the inferences from graduates views on the contribution of the EMI university that they graduated from on their being hired. Finally, variations in the subjects of the graduates in terms of the English proficiency tests they were subject to were analyzed.

As for the very first item, a lot has been said but very little research has been conducted. As Coleman (in Doiz *et al.*, 2012) suggests, one of the critical features of the rationales for implementing English-medium instruction at universities is to attract fee-paying international students, gifted teachers and researchers, and the most talented postgraduates to enhance the university's reputation, and the country's workforce. From the local students' points of view, who study in their homeland, the role of an alternative MOI to their mother tongue might be a trigger factor in their career goals (Arkin, 2013; Huang, 2011). Although a vast number of studies have been conducted on the academic facets of EMI, there appears to be a short of research regarding its influence over the workforce.

As mentioned in the literature review, the earliest MOI other than the native language of students in Turkey was French and this innovative idea came from the ultimate level of the state in 1827 (Marmara University, 2018). The logic behind was to train skillful medics, able to comprehend and practice the advancement in medicine, in order to serve at every layer of the society including the military. Therefore, it can be argued that the original idea was its contribution that is put into practice in real setting. Whereas the findings given in Table 1 indicate that almost one-third of the participants work for local-only companies, notwithstanding their HE in EMI. There also seems not to be a significant difference between the EMI types and their influence over working for a global, local, or a hybrid type of company. Still, the majority of the companies are both local and global companies. Considering the local versus global momentum of the trade in Turkey, the indications may refer to a positive standing of EMI after graduation.

To have a better understanding of whether an EMI background of graduates contributes to their being hired, the results in Table 2 are inferred. In the previous studies, EMI was reported to stand for a promising option for students not only because of its advantages in getting hired, but also of its perceived contribution to the intellectual development (Atik, 2010; Turhan & Kırkgöz, 2018) as well as to social prestige (Atik, 2010). These factors are probable to explain the dramatic increase in the number of EMI subjects in Turkey as stated in West et al. (2015). However, not all these subjects at HE level in Turkey offer full EMI as it was said earlier.

Even though the findings are not so significant, comparing the views of full EMI and partial EMI graduates in the current study showed that the former EMI type contributed more to being hired when compared to the latter. As a matter of fact, there appears to be a consensus in that both groups somewhat agree to the contribution of EMI; however, negative views are proportionally more in partial EMI group and vice versa in full EMI group.

In addition to dealing with the comparison of full and partial EMI, it was also hypothesized that there was no significant difference in the proficiency tests taken before being hired according to the subject type of the graduates. Contrary to this argument, there is a significant difference in the subjects of the graduates and the tests that they take or not ( $p < .05$ ). One unanticipated finding that affected the overall results was that of the 30 participants, 24 for graduates of civil engineering were not required to take any proficiency test at all. Considering the formerly stated factors to prefer EMI at HE level, there can be a variation among different subjects within the same division.

Despite this, such a variation can be valid due to local facts. It was previously highlighted that much of the available literature written over EMI is in the context of engineering both in global sense (e.g. Vinke, 1995; Klaassen, 2001; Ball & Lindsay, 2013) as well as local in Turkey (e.g. Kırkgöz, 2005; Başibek, Dolmacı, Cengiz, Bür, Dilek & Kara, 2014; Soruç & Griffiths, 2018; Soruç, Dinler & Griffiths, 2018; Turhan & Kırkgöz, 2018). Taking engineering as a whole and putting an overall judgment forward can nevertheless be misleading as seen in this study. Rather, considering the local factors of the target population can help in better understanding of different cases.

### **Limitations**

This current study has a number of limitations as well. Before all, the number of the participants is limited to generalize the findings in a broader sense. This can be regarded as an inevitable consequence of the difficulties in accessing to graduates. Another point to consider is that some, though not many, of the participants have been abroad, usually as an international student in an exchange program. This factor and the like might have a trigger role in their being hired and thus influenced the findings. As an instance, a partial EMI graduate could have been abroad for a year to study and taken all classes there in English. Also, the employers may think that a graduate who has been abroad is supposed to be proficient enough; therefore, exempt him or her from any English test. Finally,



contextual reasons can be counted as another limitation since one of these universities is located in the Southeastern region of Turkey while the other is in the Northwestern. For this reason, graduates are probable to have found a job in the nearby setting. Still, industry in Turkey is distributed all around the country and all participants can be assumed in the same vein.

### Suggestions

As a final remark, it can be suggested that further investigation with not only the graduates but, at least, also with the employers is required to have an in-depth analysis of EMI types and their influence in professional life. So far as this current study concerns, it can be concluded that whether a graduate of engineering holds a degree from either a full or partial EMI institution does not mean a lot after graduation. To put it in another way, companies do not focus a lot on the EMI type on hiring staff in Turkey. This is also acknowledged by the views of the graduates as there is a slight difference between the views from both types in Turkey.

The type of the EMI may not indicate a significant variation, but more emphasis should be put on the specific variations such as the subject of the graduates. As for an example from the Turkish setting, there seems not to have a demand for being an EMI graduate at all when the issue is Civil Engineering considering the lack of proficiency tests in English on being hired. However, that can be only a local concern and may not be generalized in global setting.

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