



Academic success in English Medium Instruction programmes in Turkey: Exploring the effect of gender, motivation, and English language proficiency

Samantha Curle^{a,*}, Doğan Yuksel^b, Ikuya Aizawa^c, Gene Thompson^d, Mahboubeh Rakhshandehroo^e

^a Department of Education, University of Bath, Bath, United Kingdom

^b Department of Foreign Language Education, Kocaeli University, Turkey

^c School of English, University of Nottingham, Nottingham, United Kingdom

^d Department of Global Business, Rikkyo University, Tokyo, Japan

^e The School of Policy Studies, Kwansei Gakuin University, Hyogo, Japan

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ABSTRACT

This article reports a mixed methods study that investigated the influence of gender, English language proficiency, and general motivation (Instrumental and Integrative) on academic achievement in English Medium Instruction in Turkey. Student test scores on their EMI Business Administration courses (n=143) and a general English proficiency (GEP) test were collected from second-year students. Students also filled out Turhan & Kirkgöz's (2018) Motivation Scale. Semi-structured interviews were then conducted with a subgroup of students (n=21). Regression analyses revealed that gender had no statistically significant predictive power of EMI achievement, whereas both instrumental and integrative motivation were significant predictors. English language proficiency was the strongest predictor, explaining 90% of the variance in achievement. Interview data supported these quantitative findings. Pedagogical implications of these results for language educators, and EMI lecturers and students, as well as suggestions for further research are given.

1. Introduction

The globalisation of higher education (HE) has seen English rapidly ascend as the international lingua franca, with English Medium Instruction (EMI) becoming increasingly prevalent in non-English speaking territories (Rose, Sahan & Zhou, 2022; Curle, Jablonkai, Mittelmeier, Sahan, & Veitch, 2020b). Defined as the use of English to teach non-English academic subjects in countries where English is not the majority's first language (L1, see Macaro, 2018), EMI is particularly relevant to the context of this study, Turkey. The adoption of EMI in HE institutions is multifaceted, aiming to prepare domestic students for globalisation, attract international students and staff, enhance marketability, and improve global rankings (Barnard, 2014; Kedzierski, 2016). While there is an ongoing debate regarding its effectiveness and the challenges it presents for both lecturers and students (Çankaya, 2017), there is a notable paucity of research on how motivation influences learning outcomes within EMI settings. Addressing this, the current study investigates the

* Corresponding author.

E-mail address: S.M.Curle@bath.ac.uk (S. Curle).

impact of gender, English language proficiency, and motivation—both instrumental and integrative—on academic achievement in EMI contexts in Turkey, thus contributing to the limited empirical literature on this subject.

2. Literature review

2.1. English medium instruction in Turkey

Even though Turkish higher education (HE) has experienced exponential growth of EMI programmes in the last decade (West, Guven, Parry & Ergenekon, 2015), the history of the EMI programmes in Turkey dates back to the foundation of Robert College (today known as Bogazici University) in 1863; the oldest American school established outside the United States (Minifie, 1998). According to the Centre for Student Selection and Placement (2020), 127 out of 193 HE institutions (HEIs) offer EMI programmes in Turkey. This accounts for 66% of all universities. EMI is offered to domestic students as a means to nurture them as global citizens, as well as allow them greater access to cutting-edge scientific knowledge in English (Kırkgöz, 2005). Other rationale for offering EMI include increasing the global competitiveness of HEIs, marketization, and attracting international students.

Alongside this long history of EMI implementation, debates surrounding EMI in Turkish HE have been addressed in a growing number of studies, particularly in relation to cultural, pedagogical and socio-political issues (Karakas, 2016). As EMI in Turkey has expanded, so too has the scope of research into this phenomenon. This has included the investigation of EMI academic success in Turkish EMI programmes (Altay, Curle, Yuksel, & Soruç, 2022; Curle, Yuksel, Soruç, & Altay, 2020a), the challenges EMI students face (Soruç & Griffiths, 2018; Soruç, Dinler & Griffiths, 2018), and the perceptions of teachers (Başibek et al., 2014; Ozer, 2020; Sert, 2008) and students of the effectiveness of EMI (Kırkgöz, 2013, 2014; Macaro & Akıncıoğlu, 2018). While a few studies have explored Turkish student motivation to study through EMI (Kırkgöz, 2005; Turhan & Kırkgöz, 2018), this area of research is still deficient. No previous study has explored the influence of motivation (instrumental and integrative) on EMI academic attainment in Turkey. This study aims to fill this research gap.

2.2. Success in emi

In previous EMI research, the notion of what is conceived as 'success' in EMI in higher education is highly contextualised according to individual educational needs. While there is no consensual and universally agreed definition of 'success' in EMI, some researchers (e.g. Dafouz, Camacho & Urquia, 2014) argue that EMI in their research contexts is seen as a cost-effective educational approach to improve students' language and content knowledge. Conversely, others attribute EMI most notably to the development of content knowledge through English while the language development goal remains merely implicit. For example, Arroyo-Barrigüete et al. (2022) operationalised 'success in EMI' based on student academic course grade scores in an EMI Business Administration course in Spain. Language outcomes were not taken into consideration as being part of this 'success'. Airey (2012) investigated lecturers' perceptions of EMI in a Swedish university. Participants felt that they were only responsible for the teaching of academic content and not the English language. In the Turkish EMI context, as in most EMI contexts, the improvement of students' English language proficiency is not an explicit aim, yet students are expected to master academic content of their discipline through English. Accordingly, this study operationalises 'success' both in terms of student mastery of content knowledge and language proficiency.

In addition to the development of language and content knowledge, success in EMI is also often associated with the development of 'soft' skills, such as critical thinking, interpersonal and intercultural communication skills. To unpack these perceived benefits of EMI in higher education, Author 6 explored success in EMI in an international business management program in Japan ($n=146$). Their interview participants interpreted EMI to be 'successful' if they could improve not only their content and language knowledge but also improve their prospects of long-term career advancement. Similarly, Author 7 interviewed EMI students in China (overall $n=100$) whose perceptions of success were not only limited to improving content or language knowledge, but also knowledge application and transformation, and forming new modes of thinking. Given that success in EMI often entails more than just gaining substantial academic content knowledge, the current study triangulates the quantitative findings with interview evidence and explores student perceptions of success in the Turkish higher education context in detail.

2.3. English language proficiency in emi

A growing body of EMI research has been carried out to establish the importance of English language proficiency as a significant factor facilitating or hindering successful content knowledge development through EMI (e.g. Pun & Jin, 2021; Yuksel, Soruç, Altay, & Curle, 2021). Researchers have observed the disastrous effects of insufficient L2 English proficiency on the quality of education received by many students, such as reduced content coverage and language-related challenges (Ali, 2013; Sultana, 2014). In particular, higher proficiency students only face issues associated with learning a new academic discipline at university while their lower proficiency counterparts experience considerably more onerous linguistic challenges when adjusting to the demands of EMI (e.g. Kamaşak, Sahan & Rose, 2021).

Despite the importance of English language proficiency, few studies have explored the impact of proficiency on academic outcomes while taking other factors into account, such as motivation and gender. This is mainly because previous research has operationalised success largely based on teacher and student perceived evaluation of academic performance (e.g. interviews) instead of direct measures of test scores (e.g. final exam scores, GPAs). This has limited the research paradigm to be qualitative rather than quantitative or mixed methods in nature (Macaro, 2018). In the same vein, even the existing quantitative findings have mostly been based on

correlational designs exploring the relationship between proficiency and academic performance rather than controlling for the possible effects of other variables. Recognising this limitation, the current study adopts content test scores, which represents more of a direct indication of academic success in EMI.

Some previous prediction research has adopted direct measures of success in EMI to explore the association between L2 English proficiency and academic success (e.g. [Cho & Bridgeman, 2012](#); [Curle, Yuksel, Soruç, & Altay, 2020a](#); [Trenkic & Warmington, 2019](#)). While results largely remain mixed and inconsistent, some have found a statistically significant positive relationship. For instance, [Graham \(1987\)](#) found that university students' grade point average (GPA) used as a proxy for achievement was highly positively correlated with TOEFL upon reviewing 19 early predictive validity studies. Similarly, [Cho and Bridgeman \(2012\)](#) examined TOEFL and GPA of a total of 2594 university students in America, revealing that TOEFL explained four percent of the variance in GPA ($r = 0.20$) which was still a significant result, but the magnitude of its correlation was rather small. Conversely, other studies exploring the predictive effects of IELTS found no correlation with academic success (e.g. [Krausz et al. 2005](#); [Woodrow, 2006](#)). It is however noteworthy that outcome measures (often GPA or final course test scores) in these studies were highly contextualised (often including components of numerous courses) and were not comparable across different research contexts.

While L2 proficiency is undoubtedly a critical determinant of academic success, research has consistently demonstrated that this relationship is not straightforward but is mediated by a complex interplay of various factors. This complexity suggests that L2 proficiency does not operate in isolation but interacts with other variables to influence academic outcomes. Recognising this, the current study aims to disentangle these interactions by examining the extent to which L2 English proficiency predicts academic performance, particularly when other influential factors are taken into account.

One such factor is student motivation, which has been widely acknowledged in the field of applied linguistics as a crucial element affecting language learning and academic achievement. [Dörnyei \(2007\)](#) and [Gardner \(1985\)](#) have extensively discussed how different types of motivation, ranging from integrative to instrumental, can significantly impact learners' engagement and success in language acquisition. By controlling for motivation, this study seeks to determine whether the influence of L2 proficiency on academic performance is direct or mediated through motivational factors.

Additionally, gender is another variable of interest, given its potential role in academic performance. Previous studies, such as those by [Sunderland \(2000\)](#), have highlighted gender differences in language learning contexts, suggesting that these differences might extend to academic performance in L2 contexts. By including gender as a variable, this study aims to explore whether and how gender interacts with L2 proficiency to influence academic outcomes. Thus, in examining the predictive power of L2 English proficiency on academic performance, this study considers these additional variables—motivation and gender—not merely as control factors but as integral components of a broader framework that seeks to understand the multifaceted nature of academic success in L2 contexts.

2.4. Motivation (Integrative, instrumental) and gender in emi

Previous research shows a positive linear relationship between motivation and success in EMI ([Doiz, Lasagabaster & Sierra, 2014](#)). That is, more motivated students are more likely to be confronted with less arduous language-related challenges and therefore transition more successfully into EMI study. In one of the first studies that examined the major sources of students' motivation in the Turkish EMI setting, [Kırkgöz \(2005\)](#) found that students had a mix of integrative and instrumental motivations to pursue EMI studies. In another study that investigated the differences in the motivational factors among first, second, third, and fourth year university students, [Turhan and Kırkgöz \(2018\)](#) found that "students in all groups seemed to be mostly motivated by both integrative and instrumental reasons toward EMI" (p. 272).

However, in some other studies, even when students faced challenges with regard to understanding the EMI course content, they were inclined to be motivated by instrumental factors. The instrumental factors include getting a better education and a good job ([Fidan Ucar & Soruç, 2018](#); [Kırkgöz, 2014](#); [Ozer & Bayram, 2019](#)), English language improvement and opportunities for studying and/or working abroad ([Macaro & Akıncioğlu, 2018](#)), as well as gaining access to a growing number of academic resources in English ([Ekoç, 2020](#)). These mixed results call for further research on this issue in the Turkish setting. Moreover, almost all of the studies from the Turkish context examined motivational factors on one dimension and did not consider the impact of the sources of motivation on academic success. This study addresses this gap.

Gender is examined as a variable in this study. To date, this has been only explored in a handful of EMI studies. Although previous research shows that female students might be more motivated to learn the English language, gender differences in EMI is under-researched ([Lasagabaster, 2016](#); [Morizumi, 2002](#); [Kaya, Yuksel, & Curle, 2022](#)). One of the few studies that focused on gender differences in EMI at Turkish universities ([Macaro & Akıncioğlu, 2018](#)) showed no significant gender differences in terms of how students coped with EMI, even though female students expressed more difficulty to speak in front of peers and teachers than male students. By also focusing on the predictive power of motivational factors on EMI academic success, this study makes an original contribution to knowledge by filling this gap in the literature.

3. Methods

3.1. Design of the study

This study addressed the following research questions:

1. Does Gender predict EMI Success?

2. Does English language proficiency predict EMI Success?
3. Does General Motivation (Instrumental and Integrative) predict EMI Success?
4. To what extent does Gender, English Proficiency, and Motivation predict EMI Success?

3.2. Context of the study

Turkish higher education institutions offer two types of EMI programmes: *partial* and *full* (Genc, Yuksel, & Curle, 2023). The data for this study came from a partial EMI programme, also known as a 'Multilingual Model' (Macaro, 2018) of EMI; students are required to register for a minimum of two courses taught through English per semester. Data was collected from a Business Administration programme at a major public university in Turkey that has over 50,000 registered students. The Business Administration programme offers 20 courses through English over four years of study, including Advanced Readings in Business Administration, Management Information Systems, and Human Resources Management. Forty-two courses are offered through Turkish such as Introduction to Management, Business Mathematics, Management and Organization, and Entrepreneurship and Small Businesses. This study focuses on a single academic subject in order to avoid possible subject-related confounding variables (see Margić & Vodopija-Krstanovic, 2016). Business Administration was sampled as it is one of the most popular academic subjects to be offered through EMI in the Turkish higher education setting (Student Selection & Placement Centre, 2020).

3.3. Participants

Data for this study was collected from second-year students studying Business Administration through EMI. The Business Administration programme had a total of 176 sophomore students. A total of 143 students who had taken courses both in English and Turkish volunteered to fill out the questionnaire for this study. Of these 143 students, 21 volunteered for a follow-up interview. Interview participant information is provided in Table 1.

In selecting participants for this study, a convenience sampling method was employed. This decision was primarily driven by practical considerations, including accessibility to participants and resource constraints. While convenience sampling offers the advantage of ease and efficiency in data collection, especially within the specific context of our study in Turkey, we acknowledge its limitations. Specifically, this non-probability sampling strategy may limit the generalisability of our results to other English-Medium Instruction (EMI) contexts, both within Turkey and globally (Dörnyei, 2007).

3.4. Overall participant information

In this study, the participant group comprised 143 undergraduate students from a Business Administration EMI program, with a nearly equal gender distribution of 72 females and 71 males. These participants, aged between 19 and 25 years old (mean age 19.9), were selected as they had all completed two years of study in the program, ensuring a level of academic and language experience that was comparable across the group. Importantly, all participants shared Turkish as their dominant language and had similar formal English language learning backgrounds, having been educated within the Turkish education system. This uniformity in language proficiency is crucial for the reliability of the study, as it mitigates potential variability in English language competence that could

Table 1
Interview Participants.

Pseudonym	Gender	Age	Content Average	GEP Score
Ayşe (1)	F	20	63	61
Bahar (2)	F	29	63	67
Ceren (3)	F	20	65	67
Deniz (4)	M	19	68	69
Efe (5)	M	19	68	69
Fatma (6)	F	21	66	70
Galip (7)	M	19	70	72
Hale (8)	F	25	70	74
Ilker (9)	M	22	75	75
Jale (10)	F	21	71	75
Kadir (11)	M	19	73	78
Lale (12)	F	19	74	78
Melek (13)	F	19	78	85
Nermin (14)	F	21	81	85
Oyku (15)	F	20	81	87
Peri (16)	F	19	84	88
Rasim (17)	M	21	88	89
Senem (18)	F	21	82	89
Tarkan (19)	M	20	86	90
Ulku (20)	F	20	82	90
Vedat (21)	M	22	86	91

Notes: Content Average = average score on Business Administration courses (i.e., EMI success); GEP Score = General English Proficiency Score.

impact academic performance. Moreover, they all had undergone identical assessment and exam procedures in their courses, which is significant for this study as it reduces any potential testing effect on the scores used in the analysis. Additionally, each participant had completed a minimum of eight courses taught in English and 20 courses in Turkish throughout their studies in the Business Administration program, providing a balanced exposure to both EMI and Turkish Medium Instruction (TMI), which is vital for examining the impact of language proficiency on academic performance.

3.5. Data collection

A mixed-methods survey approach (McKinley & Rose, 2020) was taken to data collection. Students' English language proficiency and EMI content scores were obtained from the University's Registrar Office after securing all the necessary legal and ethical permissions. Written informed consent was obtained from all participants who volunteered to fill in the questionnaire and partake in the follow-up interview. The following research instruments and measures were used to collect data:

- An average score on Business Administration content courses were used as a measure of EMI academic success ($n=143$). An average score was reached by dividing the sum of final course scores for all courses taken in English by the number of the English courses each student took. This calculation assumes that each course contributes equally to the students' comprehensive understanding and skill set within the Business Administration programme. We chose this equal weighting approach to maintain methodological simplicity and to avoid introducing potential biases that might arise from subjectively weighting one course as more significant than another. This decision was also informed by the structure of the Business Administration programme, where each course is designed to have an equivalent impact on the students' academic progression and is thus reflected in the credit system.
- General English language proficiency was measured using scores from a standard English proficiency test that most Turkish university students are required to take. The test was an adapted version of the Cambridge Preliminary English Test (PET) which covered all four language skills: Reading, Listening, Writing and Speaking, with a B1 difficulty level (Cambridge ESOL, 2014).
- The assessment of students' integrative and instrumental motivation was conducted using scales adapted from Turhan & Kirkgöz's (2018) research. The Integrative Motivation Scale, comprising eight items, and the Instrumental Motivation Scale, consisting of four items, were selected for their relevance to the English-Medium Instruction (EMI) context and their established reliability and validity in previous research. Students responded to these items on a six-point Likert scale, ranging from 1 (strongly disagree) to 6 (strongly agree). The choice of these particular instruments was guided by their proven effectiveness in capturing the nuanced aspects of language learning motivation in similar educational settings. The reliability and validity indices of these instruments, as reported in Turhan & Kirkgöz's study, indicated high internal consistency and construct validity, which was essential for ensuring the accuracy and reliability of our measurements. Prior to the main study, a pilot test of these scales was conducted with a smaller sample of students from a similar educational background. The pilot data were analysed using a qualitative approach using a pilot study questionnaire to confirm the scales' reliability and appropriateness for our study population. Adjustments were made based on the pilot results to ensure the scales were optimally tailored to our research context.
- To enhance the significance of the quantitative analyses, semi-structured interviews were conducted with a subgroup of students ($n=21$). All interviews were conducted in the participants' first language (i.e., Turkish) to avoid any possible hindrance of English language proficiency levels. Interviews were translated by the second author (a native Turkish speaker). The accuracy of translations was cross-checked by a bilingual scholar familiar with the context and motivational research. Disputes were double-checked and reworded after reaching a consensus (Regmi, Naidoo & Pilkington, 2010; see Appendix A for the interview protocol). Pseudonyms were used to report the interview findings in order to ensure participant anonymity.

To ensure validity and reliability of the research instruments (both the questionnaire items and the interview questions), a pilot study was carried out with a group of 10 students with characteristics similar to the main study sample. These students were asked to: fill out the questionnaire, participate in the semi-structured interview, and then were interviewed using a pilot interview protocol developed by the first author based on pilot study principles as recommended by de Vaus (2013; see Appendix B). Results of the pilot study necessitated no changes to the wording of the questionnaire items or semi-structured interview questions.

3.6. Data analyses

The computing software R was used for all quantitative data analysis. Descriptive statistics and graphs were generated as part of the data screening process. There was no missing data. Simple linear regression was carried out to investigate the relationship between EMI content scores and Gender (RQ1) and English language proficiency (RQ2). To determine whether General Motivation (Instrumental and Integrative) predicts EMI Success, multiple linear regression was used to answer research question 3. To determine the cumulative-predictive power of Gender, English language proficiency, and General Motivation (Instrumental and Integrative) of EMI Success (RQ4), a multiple linear regression model was used. To supplement the quantitative data findings with contextualised, qualitative data, content analysis of the interview dataset was carried out. Given the nature of this study (i.e. testing various hypotheses), interviews were coded deductively. Furthermore, codes were generated from the research questions (e.g. success, positive versus negative self-beliefs, perceptions of L2 ability), which were then organised into categories (see Selvi, 2020).

4. Results

4.1. General overview

4.1.1. Questionnaire data

In order to address the research questions, simple and multiple linear regression were run on the questionnaire data to investigate the relationship between variables. Descriptive statistics are presented in Table 2.

As illustrated in Table 2, students' English proficiency had a range of 40 (min=55%, max=95%, SD=9.58), while instrumental (SD=1.30) and integrative (SD=1.26) motivation showed similar variation. Content scores (i.e. EMI Success) ranged from 53% to 88% (SD=8.20, range=35), demonstrating a well-represented sample. None of the variables showed any significant skewness or kurtosis, therefore the data was accepted as approximately normally distributed. All remaining assumptions for simple and multiple linear regression were met.

4.2. Interview data

Analysis of the interviews found that while most students (i.e., 20 of the 21 participants) saw potential value in EMI for their future careers, students could be categorised into groups representing different levels of perception in EMI success: (1) a total of six students were categorised as 'just got through it', these participants tended to receive average content grades (i.e., an average of less than 70%) and generally perceived no benefit from EMI study to their content knowledge understanding or L2 ability; (2) a group of six students who could 'keep their head above water' in EMI classes, generally gained satisfactory content grades (i.e., an average of between 70% and 80%) and saw benefit to either their content or L2 ability from EMI study (i.e., usually one or the other); and finally a group of nine participants who expressed that they can 'play at this level', generally achieved high content grades (i.e., an average of above 80%), perceiving a growth in content knowledge and L2 ability, and expressing instances of 'mastery' from EMI study.

4.3. Does gender predict EMI success?

In order to answer research question one, simple linear regression was carried out to investigate the relationship between Gender and EMI content scores. The sample contained 72 students that identified as female, and 71 students that identified as male.

As the analysis in Table 3 shows, Gender was not a statistically significant predictor of EMI success ($\beta = 1.672$, $F(1, 141) = 1.49$, $p = 0.224$). Analysis of interview data supported this finding; no clear pattern was evident in the gender of participants and their perceptions of EMI success. For example, the 'just got through it' group consisted of four females and two males, the 'keep their head above water' group was evenly split (three females and three males), while the 'play at this level' group consisted of six females and three males.

4.4. Does English language proficiency predict EMI success?

To answer research question two, again, simple linear regression was used to explore the relationship between English language proficiency and EMI content scores. Results showed a statistically significant relationship between students' English language proficiency and their EMI content scores ($F(1,141)=1343$, $p = 0.000^{***}$). Table 4 shows that for every one-point increase in English Proficiency, students' content scores increased by 0.79.

The R^2 value established that increased English proficiency explained 90% of the variance in Business Administration EMI content scores. This was confirmed by the standardised Beta ($\beta = 0.95$); content scores increased by 0.95 standard deviations for every one standard deviation increase in English proficiency (SD = 9.85). English language proficiency therefore statistically significantly predicted success in EMI Business Administration courses. The scatterplot in Fig. 1 shows that there was a strong positive linear relationship between English language proficiency and EMI Success, as was confirmed by the Pearson's correlation coefficient of 0.95 ($p < 001^{***}$).

This finding was supported by the interview data. There was a clear pattern between EMI success and perceptions of L2 ability; a recognition of the costs and benefits of studying content through English. For example, participants from the 'just got through it' group focused on their difficulties of learning academic content through English. For example, Bahar (Gender=F, Content Score Average=63%, GEP Score=67%) stated that "because everything was in English, I missed some very important concepts. That was not helpful," while Ayse (Gender=F, Content Score Average=63%, GEP Score=61%) explained that she found it difficult to explain her ideas when taking a test and that "exams should be in Turkish." From the 'keep their head above water' group, responses were more positive, but

Table 2
Descriptive Statistics of all variables.

Variable	n	mean	sd	median	min	max	Range	skew	kurtosis	se
English Proficiency Score	143	75.92	9.85	76	55	95	40	0.01	0.92	0.82
Instrumental Motivation	143	3.82	1.30	4	1	6	5	0.05	-0.98	0.11
Integrative Motivation	143	3.59	1.26	4	1	6	5	-0.02	-1.30	0.11
Content Score Average	143	72.54	8.20	72	53	88	35	0.03	-0.74	0.69

Table 3
Simple Linear Regression Output: Gender and Content scores.

	ΔR^2	B	SE B	Standardized β	t value	p value
Constant	0.003	70.04	2.16		32.42	< 0.001***
Gender		1.672	1.37	0.10	1.22	0.224

Table 4
Simple Linear Regression Output: English language proficiency and Content scores.

	ΔR^2	B	SE B	Standardized β	t value	p value
Constant	0.904	12.41	1.65		7.05	0.000***
English Proficiency Score		0.79	0.02	0.95	36.64	< 0.001***

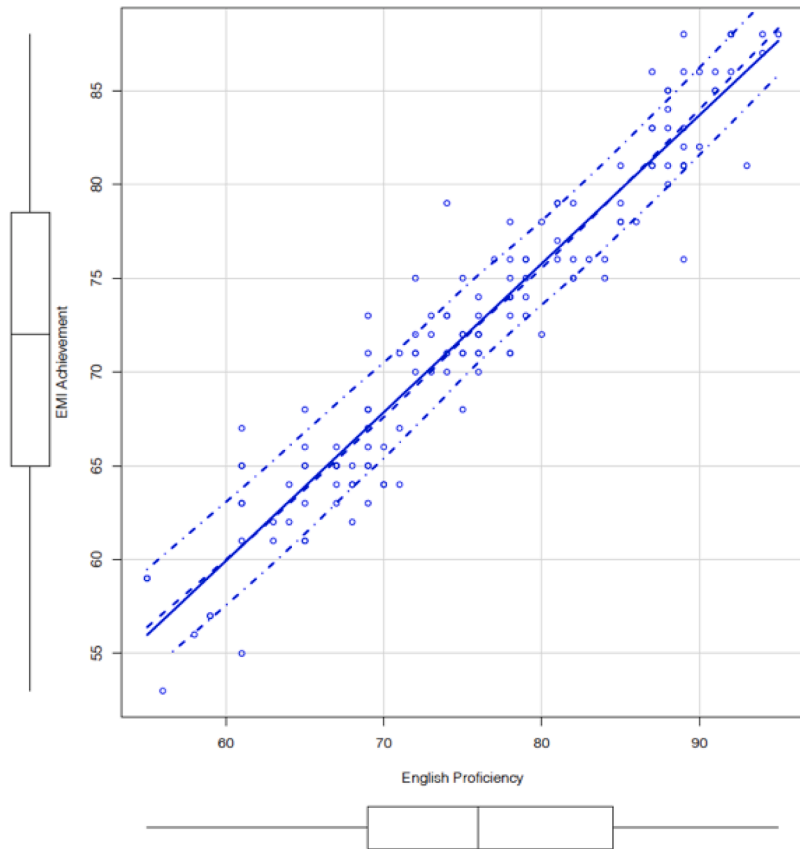


Fig. 1. Scatterplot of English language proficiency and Content scores.

participants still noted language difficulties. For example, Kadir (*Gender=M, Content Score Average=73%, GEP Score=78%*) said; “I guess I learned some interesting content knowledge” noting that “I had problems understanding some coursebooks and also sometimes my teachers.” In contrast, the participants from the ‘play at this level’ group indicated that they were comfortable studying through English. For example, Ulku (*Gender=F, Content Score Average=82%, GEP Score=90%*) stated “I believe my English is good”, while Vedat (*Gender=M, Content Score Average=86%, GEP Score=91%*) explained “I like studying in English. It is more fun, so I learn the content better.” Further to these perceptions of personal competency, participants from the ‘play at this level’ group noted *specific* benefits of studying via the L2. To illustrate, Peri (*Gender=F, Content Score Average=84%, GEP Score=88%*) stated “I have access to original sources, lots of videos from famous universities. EMI helps me a lot.”

4.5. Does general motivation (Instrumental and integrative) predict EMI success?

Multiple linear regression was used to determine whether General Motivation (Instrumental and Integrative) predicts EMI Success.

A significant regression equation was found ($F(2140) = 286.1, p < 0.001^{***}$), with an R^2 of 0.80 (see Table 5). Motivation therefore explained 80% of the variance in Business Administration EMI content scores.

Table 5 shows that students' content scores increased by 0.34 for every one-point percentage increase in instrumental and integrative motivation. Both types of motivation were found to be statistically significant predictors of student success in EMI.

Interview findings support this result. As discussed above, almost all of the students (i.e., 20 of the 21 participants) mentioned the instrumental value of studying through EMI. However, there were differences between the strength and specificity of those perceived benefits for the different groups. For example, Bahar (*Gender=F, Content Score Average=63%, GEP Score=67%*) from the 'just got through it' group stated, "it will be beneficial, knowing English is always good in Turkey." In contrast, participants from the 'keep their head above water' and the 'play at this level' group were more likely to note very specific instrumental factors. To illustrate, Tarkan (*Gender=M, Content Score Average=86%, GEP Score=90%*) from the 'play at this level' group revealed "it will help me very much. I will apply to international companies. It will also facilitate graduate school applications." Regarding integrative motivation, there was a similar pattern, with a greater personal focus on L2 improvement for participants from the more successful groups who were more personally invested in English usage. For example, in the 'keep their head above water' and 'play at this level' groups, a common pattern was a desire to integrate with the wider (English-speaking) community. For example, Senem (*Gender=F, Content Score Average=82%, GEP Score=89%*) from 'play at this level' group explained that "out of class, I used English in social media; what I learned in class helped me out of class," while Ulku (*Gender=F, Content Score Average=82%, GEP Score=90%*) revealed that "outside class, I use English a lot and communicate with native speakers."

4.6. To what extent does gender, English proficiency, and motivation predict EMI success?

In order to answer the fourth research question, all predictor variables were put into one statistical model (a multiple linear regression model) in order to explore variance explained in the outcome variable (EMI content scores). A significant regression equation was found ($F(4, 138) = 394.3, p < 0.001^{***}$), with an R^2 of 0.917 (see Table 6). These predictors therefore explained 91.7% of the variance in EMI content grades.

Table 6 illustrates that English proficiency, instrumental motivation, and integrative motivation were significant predictors of EMI success. Content Scores increased by 0.71 for every percentage point increase in English Proficiency, increased by 0.13 for every point increase in instrumental motivation, and 0.15 for every point increase in integrative motivation. English language proficiency, and both types of motivation (instrumental and integrative) were significant predictors of EMI achievement when all variables were considered. However, similar to the simple linear regression for RQ1, gender was again found *not* to be a statistically significant predictor of success in EMI.

5. Discussion

5.1. English language proficiency

This study explored the relationship between EMI academic achievement and gender, English language proficiency, and motivation. The significant finding that English language proficiency was the strongest predictor of success confirms the results of previous studies. Both the current study and previous studies that have adopted a direct measure of success in EMI have demonstrated a clear link between L2 English proficiency and academic success in EMI (e.g. Cho & Bridgeman, 2012; Soruç, Altay, Curle, & Yuksel, 2021; Trenkic & Warmington, 2019). This study used qualitative evidence to compliment the simple and multiple regression analyses. A mixed methods approach has not been used in many of the studies which previously examined this relationship between L2 English proficiency and academic success in EMI (e.g. Kamaşak, Sahan & Rose, 2021, Cho & Bridgeman, 2012, Graham, 1987). This highlights a methodological contribution that this study makes.

While English proficiency was an important factor accounting for 90% of the variance in achievement in EMI, the multiple regression analysis in our study shows that other factors, including instrumental motivation, and integrative motivation were also significant predictors of academic success in EMI while controlling for other factors, such as gender. This result is consistent with other studies. For example, in their qualitative data, Yuksel et al. (2021) and Altay et al. (2022) found that their interview participants felt that factors other than the knowledge of English contributes to successful EMI studies. These included self-motivation, knowledge application, and developing new ways of thinking. These findings highlight the complexity of the construct of 'success in EMI', and the need in future research to consider multiple factors and possible influences on EMI success.

Table 5

Multiple Regression Output: Instrumental Motivation, Integrative Motivation, and Content Scores.

	ΔR^2	<i>B</i>	<i>SE B</i>	Standardized β	<i>t value</i>	<i>p value</i>
Constant	0.80	49.67	1.00		49.33	<0.001***
Instrumental Motivation		3.43	0.34	0.436	9.84	<0.001***
Integrative Motivation		2.75	0.34	0.529	8.10	<0.001***

Table 6
Multiple Regression Output: Gender, English Proficiency, Motivation and Content Scores.

	ΔR^2	<i>B</i>	<i>SE B</i>	Standardized β	<i>t</i> value	<i>p</i> value
Constant	0.917	21.0	2.50		8.39	<0.001***
Gender		-0.433	0.56	-0.26	-0.77	0.44
English Proficiency		0.59	0.04	0.71	13.37	<0.001***
Instrumental		0.84	0.36	0.13	3.29	0.001**
Motivation						
Integrative		0.99	0.30	0.15	2.31	0.02*
Motivation						

5.2. Motivation

Consistent with previous motivation studies in the Turkish EMI setting (e.g. [Kırkgöz, 2005](#); and [Turhan & Kırkgöz, 2018](#)), the current study also showed that both integrative and instrumental types of motivation were significant predictors of success in EMI. While previous studies showed that instrumental motivation, such as improving career prospects and achieving more advanced English language skills (e.g. [Fidan Ucar & Soruc, 2018](#); [Kırkgöz, 2014](#); [Ozer & Bayram, 2019](#)) were often more valued by participants, evidence from this study highlighted the constellation of both integrative and instrumental motivations as important factors in EMI. In order for these findings to be generalisable, further in-depth investigations of motivation and its relationship with EMI success need to be replicated in other EMI contexts across the globe. This would help us gather supplementary evidence to further understand student motivation, and therefore how best to cater for students' needs as they progress through their EMI studies.

5.3. Gender

This study did not establish a link between EMI success and gender. This result is consistent with previous studies that showed gender differences disappeared in terms of academic performance in EMI (e.g. [Lasagabaster, 2016](#), [Macaro & Akincioglu, 2018](#); [Altay et al., 2022](#)). Nevertheless, female students have reported facing more difficulties in terms of speaking up in front of peers and teachers, than male students ([Macaro & Akincioglu, 2018](#)). This illustrates a possibly more complex association between gender and EMI success that has yet to be fully uncovered. While our study did not establish a definitive link between gender and EMI success within the context of business studies, we recognise that this may not hold true across different academic disciplines, particularly in fields that have historically been gendered, such as Physics and Engineering. Future research might adopt more varied methods of data collection to capture this complexity, which might include lecture observation (structured or unstructured), reflective writing (journal writing over an extended period of time), or verbal commentaries (such as stimulated recall interviews). It is important to fully and thoroughly investigate the hypothesis that a gender-divide might exist in EMI academic attainment. Such an investigation would have clear pedagogical implications of how best to support students of different genders; by designing and providing more personalised EMI support. Therefore, we suggest that future research should explore this association in a broader range of subjects, employing diverse data collection methods, such as longitudinal studies, mixed-methods approaches, and qualitative analyses, to provide a more nuanced understanding of how gender may influence EMI success across various academic disciplines.

5.4. Measuring success

How academic success in EMI is measured is highly contextualised according to different research contexts. For example, [Cho and Bridgeman \(2012\)](#) investigated the relationship between the total scores of the Test of English as a Foreign Language (TOEFL) and the overall Grade Point Averages (GPAs) of 2594 university students in the United States. Their analysis revealed a significant correlation ($r = 0.20$) between TOEFL total scores and cumulative GPAs. Notably, their study population comprised both domestic and international students, providing a broad perspective on academic performance. In our study, we focused on enhancing ecological validity within our research context. We operationalised academic success based on the average scores in Business Administration content courses, which we believe offers a more direct and relevant measure of academic achievement for students enrolled in Business Studies programmes. By utilising scores from regular coursework specific to this discipline, our study underscores the significance of employing discipline-specific metrics to accurately gauge academic success, particularly in the context of Business education.

6. Conclusion

To conclude, while this study made novel contributions by exploring the interplay between unique variables in the context of Business Administration EMI programmes, its scope was limited to the social sciences. This limitation restricts the generalisability of our findings to disciplines like Mathematics, Physical, and Life Sciences, where EMI's dynamics might differ. Future research should therefore not only replicate this study in diverse academic subjects but also consider additional variables that could influence EMI success. These may include cultural factors, students' previous educational backgrounds, different teaching methodologies within EMI, and the impact of extracurricular language support programmes. Moreover, longitudinal studies could provide deeper insights into how EMI students' language proficiency and academic performance evolve over time. Understanding these facets will further aid universities in developing effective strategies to not only support students in their EMI studies but ensure they excel in them.

CRediT authorship contribution statement

Samantha Curle: Conceptualization, Investigation, Methodology, Project administration, Resources, Supervision, Validation, Software, Writing – original draft, Writing – review & editing. **Doğan Yuksel:** Conceptualization, Data curation, Investigation, Methodology, Writing – original draft. **Ikuya Aizawa:** Conceptualization, Investigation, Validation, Writing – original draft. **Gene Thompson:** Formal analysis, Validation, Visualization, Investigation, Writing – original draft. **Mahboubeh Rakhshandehroo:** Investigation, Methodology, Writing – original draft.

Declaration of Competing Interest

There are no potential conflicts of interest.

We, hereby, confirm that the work described has not been published previously, that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the responsible authorities where the work was carried out, and that, if accepted, it will not be published elsewhere in the same form, in English or in any other language, including electronically without the written consent of the copyright-holder.

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Appendix A – Main Study Interview Protocol

Section 1: Personal Information

1. In which language would you prefer this interview to be conducted?
2. Did you attend the preparatory program at this university?

Section 2: General Aspects of Motivation towards EMI

1. Do you think EMI affects your English language proficiency?
 - a. If yes, how? Please exemplify / explain / elaborate.
 - b. If no, please exemplify / explain / elaborate.
2. Do you think EMI affects your business content knowledge?
 - a. If yes, how? Please exemplify / explain / elaborate.
 - b. If no, please exemplify / explain / elaborate.

Section 3: Specific Aspects of Motivation towards EMI

1. Do you think EMI provides any benefits in terms of communicating with various people and understanding their cultures?
 - a. Please exemplify / explain / elaborate.
2. Do you think studying through EMI will be beneficial for your future career?
 - a. Please exemplify / explain / elaborate.
3. When studying through EMI, how do you feel? (e.g. anxious, self-confident, accomplished, skillful, etc.)
 - a. Please exemplify / explain / elaborate.
4. How does the learning environment affect your motivation towards EMI? (e.g. lecturers, peers, materials, etc.)
 - a. Please exemplify / explain / elaborate.

Section 4: Final Comments on EMI

1. Is there anything else that you would like to add to our discussion?

Appendix B – Pilot Study Interview Protocol

1. Were there any Interview questions / Questionnaire items that you did not understand?
 - a. Which questions / items?
 - b. How would you change these questions / items? Delete or re-word?
 - c. (If re-word) How would you re-word these questions / items?
 - i. Question / Item __ Re-worded _____?
2. Did any Interview questions / Questionnaire items make you uncomfortable?
 - a. Which questions / items?
 - b. How would you change these questions / items? Delete or re-word?

- c. (If re-word) How would you re-word these questions / items?
 - i. Question / Item __ Re-worded _____?
3. Do you think any Interview questions / Questionnaire items were very similar?
 - a. If so, which ones?
 - b. How were they similar?
4. Do you think any Interview questions / Questionnaire items did not belong in this interview / questionnaire?
 - a. If so, which Questions / Items?
 - b. Please elaborate why you think they do not belong.
 - c. Do you think these Questions / Items should be deleted?
 - i. If so, please elaborate. (Why do you think they should be deleted?)
5. Were there any interview questions / sections in the questionnaire that you thought did not fit well together?
 - a. Which questions / sections were these?
6. Were there any interview questions / questionnaire sections that you thought took particularly long to answer?
7. Did you answer any Questions / Items that you wished you had more time / space to provide a more elaborated answer?
 - a. If yes, which Questions / Items were these? _____

References

- Airey, J. (2012). I don't teach language. The linguistic attitudes of physics lecturers in Sweden. *AILA Review*, 25, 64–79.
- Ali, N. L. (2013). A changing paradigm in language planning: English-medium instruction policy at the tertiary level in Malaysia. *Current Issues in Language Planning*, 14(1), 73–92.
- Altay, M., Curle, S., Yuksel, D., & Soruç, A. (2022). Investigating academic achievement of English medium instruction courses in Turkey. *Studies in Second Language Learning and Teaching*, 12(1), 117–141. <https://pressto.amu.edu.pl/index.php/ssl/article/view/26179>.
- Arroyo-Barrigüete, J. L., López-Sánchez, J. I., Morales-Contreras, M. F., & Soffritti, M. (2022). The impact of English-medium instruction on university student performance. *Journal of Multilingual and Multicultural Development*.
- Barnard, R. (2014). English medium instruction in Asian universities: Some concerns and a suggested approach to dual-medium instruction. *Indonesian Journal of Applied Linguistics*, 4(1), 10–22.
- Cambridge, ESOL. (2014). *Cambridge proficiency english test*. Cambridge University Press.
- Çankaya, P. (2017). Challenges in English Medium of Instruction from the Teachers and Students' Eyes. *International Journal of Languages' Education*, 1(5/4), 830–839.
- Cho, Y., & Bridgeman, B. (2012). Relationship of TOEFL iBT scores to academic performance: some evidence from American Universities. *Language Testing*, 29(3), 421–442.
- Curle, S., Jablonkai, R., Mittelmeier, J., Sahan, K., & Veitch, A. (2020b). English Medium Part 1: Literature review. In N. Galloway (Ed.), *English in higher education (Report No. 978-0-86355-977-8)*. British Council. <https://www.teachingenglish.org.uk/article/english-higher-education-%E2%80%93-english-medium-part-1-literature-review>.
- Curle, S., Yuksel, D., Soruç, A., & Altay, M. (2020a). Predictors of English Medium Instruction academic success: English proficiency versus First language medium. *System*, 95, Article 102378. <https://doi.org/10.1016/j.system.2020.102378>
- Dafouz, E., Camacho, M., & Urquia, E. (2014). 'Surely they can't do as well': A comparison of business students' academic performance in English-medium and Spanish-as-first- language-medium programmes. *Language and Education*, 28(3), 223–236.
- de Vaus, D. (2013). *Surveys in social research*. Routledge.
- Doiz, A., Lasagabaster, D., & Sierra, J. M. (2014). CLIL and Motivation: The effect of individual and contextual variables. *The Language Learning Journal*, 42(2), 209–224.
- Dornyei, Z. (2007). *Research methods in applied linguistics*. Oxford: Oxford University Press.
- Ekoç, A. (2020). English Medium Instruction (EMI) from the perspectives of students at a technical university in Turkey. *Journal of Further and Higher Education*, 44(2), 231–243.
- Fidan Ucar, H.Ü.L.Y.A., & Soruç, A. (2018). Examining Turkish University students' sense of achievement, motivation, and anxiety: A comparison of the English-and French-medium education systems.
- Gardner, R. C. (1985). *Social psychology and second language learning: The role of attitudes and motivation*. London, England: Edward Arnold.
- Genç, E., Yuksel, D., & Curle, S. (2023). Lecturers' translanguaging practices in English-taught lectures in Turkey. *Journal of Multilingual Theories and Practices*, 4, 8–31. <https://doi.org/10.1558/jmtp.23945>
- Graham, Janet G. (1987). English language proficiency and the prediction of academic success. *TESOL Quarterly*, 21(3), 505–521.
- Kırkgöz, Y. (2013). Students' approaches to learning in an English-medium higher education. *The Journal of Language Learning and Teaching*, 3(2), 30–39.
- Kamaşak, R., Sahan, K., & Rose, H. (2021). Academic language-related challenges at an English-medium university. *Journal of English for Academic Purposes*, 49, Article 100945.
- Karakas, A. (2016). *Turkish lecturers' and students' perceptions of english in english-medium instruction universities (Doctoral dissertation)*. University of Southampton.
- Kaya, S., Yuksel, D., & Curle, S. (2022). The effects of Language Learning and Maths Mindsets on Academic Success in an Engineering programme in Turkey. *Journal of Engineering Education*. <https://doi.org/10.1002/jee.20499>
- Kedzierski, M. (2016). English as a medium of instruction in East Asia's higher education sector: A critical realist Cultural Political Economy analysis of underlying logics. *Comparative Education*, 52(3), 375–391.
- Kırkgöz, Y. (2005). Motivation and student perception of studying in an English-medium university. *Dil ve Dili Bilimi Çalışmaları Dergisi*, 1(1), 101–123.
- Kırkgöz, Y. (2014). Students' perceptions of English language versus Turkish language used as the medium of instruction in higher education in Turkey. *Turkish Studies*, 9, 12, 443–459.
- Krausz, J., Schiff, A., Schiff, J., & Hise, J. V. (2005). The Impact of TOEFL Scores on Placement and Performance of International Students in the Initial Graduate Accounting Class. *Accounting Education: An International Journal*, 4(1), 103–111.
- Lasagabaster, D. (2016). The relationship between motivation, gender, LI and possible selves in English-medium instruction. *International Journal of Multilingualism*, 13(3), 315–332.
- Macaro, E., & Akıncioğlu, M. (2018). Turkish university students' perceptions about English Medium Instruction: Exploring year group, gender and university type as variables. *Journal of Multilingual and Multicultural Development*, 39(3), 256–270.
- Macaro, E. (2018). *English medium instruction: Content and language in policy and practice*. Oxford: Oxford University Press.
- Margić, B. D., & Krstanović, I. V. (2016). *Uncovering English-medium instruction: Global issues in higher education*. Peter Lang.
- McKinley, J., & Rose, H. (2020). *The routledge handbook of research methods in applied linguistics*. Abingdon: Routledge.

- Minifie, J. (1998). Merhaba... Allaha ismarladik: A Sabbatical Year in Turkey. *Journal of College Admission*, 158, 25–29.
- Morizumi, F. (2002). Does gender matter in language learning? *International Christian University Educational Studies*, 44, 223–235.
- Ozer, O., & Bayram, N. (2019). Students' experiences of English-Medium courses at tertiary level: A case in Turkey. *International Online Journal of Educational Sciences*, 11(1), 61–70. <https://doi.org/10.15345/iojes.2019.01.005>
- Ozer, O. (2020). Lecturers' experiences with English-medium instruction in a state university in Turkey: Practices and challenges. *Issues in Educational Research*, 30(2), 612–634.
- Pun, J., & Jin, X. (2021). Student challenges and learning strategies at Hong Kong EMI universities. *PLoS ONE*, 16(5), Article e0251564. <https://doi.org/10.1371/journal.pone.0251564>
- Regmi, K. R., Naidoo, J., & Pilkington, P. (2010). Understanding the processes of translation and transliteration in qualitative research. *International Journal of Qualitative Methods*, 9(1), 16–26.
- Selvi, A. F. (2020). Qualitative content analysis. In J. McKinley, & H. Rose (Eds.), *The routledge handbook of research methods in applied linguistics*. Abingdon: Routledge.
- Soruç, A., & Griffiths, C. (2018). English as a medium of instruction: Students' strategies. *Elt Journal*, 72(1), 38–48.
- Soruç, A., Dinler, A., & Griffiths, C. (2018). Listening comprehension strategies of EMI students in Turkey. *Key issues in English for specific purposes in higher education* (pp. 265–287). Cham: Springer.
- Soruç, A., Altay, M., Curle, S., & Yuksel, D. (2021). Students' academic language-related challenges in English Medium Instruction: the role of English proficiency and language gain. *System*, 103, 102651.
- Student Selection and Placement Center. (2020). University placement manual. Retrieved 10 March 2020, from http://dokuman.osym.gov.tr/pdfdokuman/2019/YKS/tablo4_18072019.xls.
- Sultana, S. (2014). English as a medium of instruction in bangladesh's higher education: empowering or disadvantaging students? *Asian EFL Journal*, 16(1), 11–52.
- Sunderland, J. (2000). Gender and language and gender and language learning. In M. Byram (Ed.), *Routledge encyclopaedia of language teaching and learning* (pp. 228–232). Routledge.
- Trenkic, D., & Warmington, M. (2019). Language and literacy skills of home and international university students: How different are they, and does it matter? *Bilingualism: Language and Cognition*, 22, 349–365. <https://doi.org/10.1017/S136672891700075X>
- Turhan, B., & Kirkgöz, Y. (2018). Motivation of engineering students and lecturers toward English medium instruction at tertiary level in Turkey. *Dil ve Dili Bilimi Çalışmaları Dergisi*, 14(1), 261–277.
- West, R., Güven, A., Parry, J., & Ergenekon, T. (2015). *Türkiye'de yükseköğretim kurumlarındaki İngilizce eğitimi. Tepav ve British council*. Ankara.
- Woodrow, L. (2006). *Academic success of international postgraduate education students and the role of English proficiency*, 1 pp. 51–70). University of Sydney Papers in TESOL.
- Yuksel, D., Soruç, A., Altay, M., & Curle, S. (2021). A longitudinal study at an English Medium Instruction university in Turkey: the interplay between English language improvement and academic success. *Applied Linguistics Review*. <https://doi.org/10.1515/applirev-2020-0097>

Samantha Curle (DPhil, FHEA, FRSA) is a Reader in Education (Applied Linguistics), Director of the MRes programme in Advanced Quantitative Research Methods (University of Bath), and Associate Member of the English Medium Instruction Oxford Research Group (University of Oxford). Her main research interest lies in factors affecting academic achievement in English Medium Instruction (EMI) in higher education. She has published five edited books on EMI. Her EMI-related research has been published in journals such as *Language Teaching*, *Applied Linguistics Review*, *Studies in Higher Education*, *Journal of Engineering Education*, *Journal for the Psychology of Language Learning*, *Journal of English for Academic Purposes*, *Language Teaching Research*, and *International Journal of Bilingual Education and Bilingualism*.

Doğan Yuksel is a Research Fellow and Project Manager on the UKRI-funded ELEMENTAL project at The Open University, UK. He is the co-editor of the book, "Multilingual and Translingual Practices in English-Medium Instruction Perspectives from Global Higher Education Contexts" (by Bloomsbury). His areas of interest include Classroom Discourse and English-medium instruction. His EMI-related work has been published in such journals as *Linguistics and Education*, *Journal of English for Specific Purposes*, *Applied Linguistics Review*, and *System*. ORCID: 0000-0001-9131-3907.

Ikuya Aizawa is an Assistant Professor in Applied Linguistics in the School of English at Nottingham University. His research focuses on the role of English in higher education, language policy concerning EMI, and the effectiveness of EMI in relation to students' content and language outcomes.

Gene Thompson is an Associate Professor in the Department of Global Business at Rikkyo University and a member of the EMI Oxford research group. His research focuses on the intersection between learner self-beliefs and behaviour. His work has recently appeared in the *International Journal of Bilingual Education and Bilingualism*, *Studies in Second Language Learning and Teaching*, *System*, and *Language & Education*.

Mahboubeh Rakhshandehroo is an Associate Lecturer of English at Kwansai Gakuin University. She is also the ICLHE East Asia leadership team coordinator. She teaches EAP classes and a CLIL course on the internationalization of higher education. She is also teaching a course on minorities in Japan at Doshisha Women's College of Liberal Arts. She received her PhD in Critical Studies in Transformative Education from Osaka University. Her research interests include English-Medium Instruction (EMI) support, English native speakerism, multiculturalism, and Collaborative Online International Learning (COIL).