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EMI STUDENTS' PROGRESS IN ENGLISH LANGUAGE PROFICIENCY: A PRE-POST STUDY

Improved English language proficiency is considered to be one of the greatest strengths of English-medium instruction (EMI). However, only a limited number of studies have empirically investigated this topic. The aim of this pre-post study was to examine EMI students' English language proficiency at the beginning and the end of their undergraduate studies at the Faculty of Economics and Business in Rijeka, and compare their language proficiency and progress with those of non-EMI students. The research involved 256 first-year students (FYS) and 141 third-year students (TYS). Research instruments comprised a questionnaire examining students' previous English language learning and self-assessment of English language skills, the Oxford Quick Placement test, a C-test and a business English test. These were followed by interviews with students to discuss their expectations (fulfilment) regarding their English language progress due to EMI and regarding the usefulness of English for specific purposes (ESP) courses. The test results were analysed with the help of independent t-tests to determine the statistical significance of the differences between EMI and non-EMI FYS and YYS.

The findings show that EMI students' English language proficiency is greater than that of non-EMI students both at the beginning and the end of their undergraduate studies. EMI and non-EMI students make similar progress in general English, while EMI students progress better in business English. The majority of EMI students ascribe their (business) English language progress to EMI, but they also acknowledge the importance of ESP courses offered during their course of study, where an explicit focus is given to language and which therefore serve as scaffolding for content courses.

1. Introduction

In the past few decades, the internationalisation of higher education has been gaining momentum (Block and Khan 2021). According to Ritzen (2004: 36), “an international university cannot be considered truly international if it does not recruit its students from a wide range of cultures and nationalities”. Increased international mobility of students has encouraged Englishisation of higher education, that is, the usage of the English language in non-English-speaking contexts (Wilkinson and Gabriëls 2021), which has in turn led to the growing implementation of English-medium instruction (EMI) in higher education.

EMI is defined as “the use of the English language to teach academic subjects (other than English itself) in countries or jurisdictions where the first language of the majority of the population is not English” (Macaro et al. 2018: 37). English-taught study programmes are viewed as beneficial for teachers, students and institutions as they enhance visibility, competitiveness, mobility and international collaboration (Dearden 2014; De Costa, Green-Eneix and Li 2020). One of the greatest perceived strengths of EMI is an increase in language proficiency resulting from a daily exposure to the language and integrated acquisition of content and language (cf. Drljača Margić and Vodopija-Krstanović 2017; Richards and Pun 2023).

Although the number of scholarly papers and studies on EMI is constantly rising (Čakarun 2024; Wilkinson 2017), there is a limited number of studies investigating the impact of EMI on students' English language proficiency (Lasagabaster 2022), and only few studies compare EMI and non-EMI students' English lan-

guage knowledge (Macaro et al. 2018). In other words, EMI students' language progress¹ has been theorised, perceived and anticipated by the authors of different studies much more than actually examined and assessed. There seems to be a range of factors contributing to the limited research on this topic. However, three main reasons stand out. The first is the absence of a standardised English language test which could be used by researchers to assess EMI students' English language proficiency (Macaro et al. 2018). The other is the fact that language-related outcomes are not specified in EMI and language development is not the primary focus of EMI content courses; rather, language advancement is seen as a by-product of the exposure to and the use of the language (Pecorari 2020). The third reason is that such studies are longitudinal and time-consuming (cf. Macaro et al. 2018).

The paucity of research into this aspect of EMI prompted us to enquire into EMI students' English language proficiency and progress by identifying the level of students' language command at the beginning and the end of their undergraduate studies, and to compare them with those of non-EMI students.

2. Previous research

Rare studies that addressed EMI students' language competence drew their findings from students and teachers' views and observations rather than from students' language proficiency examination. The following studies analysed EMI students' language development. Cosgun and Hasırcı (2017) explored the change in EMI students' level of English from the beginning of their studies until after four to eight semesters at the university. For the purposes of data collection, the authors used the institution's proficiency exam, examining students' reading, listening and writing skills for academic purposes. The same exam was given to the same students at the beginning and the end of research. The authors revealed a statistically significant increase when it came to students' reading and listening mean scores. However, the writing scores decreased. It was concluded that the receptive skills might have improved due to the exposure

¹ The term *language progress* in this paper refers to a progress outcome rather than a process. The term was also employed in previous research on the topic with the same meaning.

to the language, whereas the lack of advancement in students' writing skill was attributed to the lack of feedback and focus on the language itself. Rogier (2012) investigated EMI students' English language skills after four years of studying in English using the IELTS exam. The findings of her research point to a statistically significant improvement in all four English language skills, with the greatest improvement in speaking. The author explains that this is due to the fact that speaking skills were more practised, through a large number of activities such as discussions, group works and presentations, than other skills, which was confirmed by both teachers and students participating in the study. Yuksel et al. (2023) examined EMI students' English language skills (reading, writing, listening and speaking) before the beginning of their studies and after four years of EMI with the help of an adjusted Cambridge Preliminary English test. The findings only revealed a statistically significant advancement of students' general English language proficiency.

Conversely, the findings of some studies suggest that EMI has not yielded the expected language progress. The findings of a study conducted by Lei and Hu (2014), which included a comparison non-EMI group, indicate that the English language proficiency of students studying in English is not better than the English language proficiency of students studying in Chinese. The level of their English language proficiency was examined through College English Test (Band 4 at the end of their freshman year, and Band 6 at the end of their sophomore year). Given the similarity in the obtained results after one year of their studies, the authors concluded that EMI did not have an important impact on the development of EMI students' English language proficiency. They mainly attribute this to the teachers' insufficiently developed English language skills and ineffective teaching methods, as well as to a possible misalignment of the tests used for the purposes of the research and the language proficiency aimed for in EMI. Research conducted by Chung and Lo (2023) also included a comparison non-EMI group of students. Both EMI and non-EMI students' English language proficiency was investigated after one semester, during which both groups of students took the same course, taught by the same teacher in English and Chinese respectively. For data collection, the authors used an English language proficiency pre- and post-test (at the beginning and the end of the semester), examining students' receptive skills, as well as midterms and exams used during the course, with the aim of investigating their content acquisition. The findings indicate that although EMI

students have greater language proficiency than non-EMI students, both groups of students show similar, statistically significant improvements in their listening skills, while their reading skills significantly regressed. The authors explain that a reason for lower reading scores could be learning from PowerPoint presentations rather than from textbooks and additional readings. They also mention that while one semester may be a sufficient period for listening skills to improve, the development of reading skills requires a longer period and more effective teaching and learning strategies. Regarding their content knowledge, non-EMI students performed better in the midterm, while EMI students performed better in the final exam, suggesting that more time is necessary for EMI students to get accustomed to the usage of English as a medium of instruction. The comparison of these two groups of students yielded no statistically significant results.

As for Croatia, where the present study was conducted, research in the field of EMI has primarily focused on teachers' and students' attitudes, perceptions and experiences related to EMI, language policy in EMI, teachers' English language proficiency, students' language proficiency through teachers' lenses, and professional development of teachers for EMI (e.g. Drljača Margić 2024; Drljača Margić and Vodopija-Krstanović 2017, 2018, 2022). With regard to students' English language proficiency and progress, the first, preliminary quantitative study was conducted in the academic year 2019/2020, encompassing two different generations of EMI and non-EMI students – first-year students (FYS) and third-year students (TYS) – whose English language proficiency was investigated within one academic year, namely at the beginning and the end of the same year. The findings, published in Čakarun and Drljača Margić (2021), suggested that EMI students had better English knowledge both at the beginning and the end of their studies. However, while EMI students made better progress in business English, non-EMI students progressed better in general English.

In Čakarun and Drljača Margić (2024), the results of the study from 2021 were discussed in the context of wider qualitative research into students' motivation for a study programme in English and their expectations regarding their language progress. The results of the language tests reflected EMI students' motivation, expectations and expectation fulfilment. Their primary motivation for enrolment in EMI was English proficiency improvement, and they expected

their language command to improve. The majority of third-year EMI students reported that their expectations were met.

The present study, unlike the studies from 2021 and 2024, includes one generation of students examined at the beginning and the end of their undergraduate studies. In other words, FYS and TYS were the same students, assessed using the same set of research instruments at both time points. Specifically, the English language proficiency of FYS, who participated in the preliminary study, was reassessed three years after their enrolment in an undergraduate study programme in English. In addition, students' views on the importance of ESP were investigated and analysed in greater depth. The findings were initially presented in Čakarun's (2024) unpublished doctoral dissertation.

3. Methodology

This section comprises four subsections. Subsection 3.1 depicts the context where this research was conducted. Subsection 3.2 outlines the aims of this research and the research questions. In subsection 3.3, research instruments and procedures are described, whereas subsection 3.4 gives more information on the participants in the study.

3.1. The context

The implementation of EMI in Croatia was prompted by the Bologna Process and the trends of integration and internationalisation of higher education in Europe (Drljača Margić and Vodopija-Krstanović 2017). The first English-taught study programme at a public university in Croatia was launched in 2003, and today there are 143 English-medium study programmes in the country (Ministarstvo znanosti i obrazovanja 2025). The increase in the number of study programmes in foreign languages is an important strategic aim of Croatian universities (Drljača Margić and Vodopija-Krstanović 2022).

The University of Rijeka is the only university in Croatia where extensive research in EMI has been conducted for the last fifteen years. Moreover, at the

University, a number of national and international EMI-related projects have been run, and the University has been a partner in several international projects significant for the development of and quality insurance in EMI, such as the Erasmus+ project “Transnational Alignment of English Competences for University Lecturers (TAEC)” (2017–2020). The University currently offers 17 English-taught study programmes (Ministarstvo znanosti i obrazovanja 2025).

This study was conducted at the Faculty of Economics and Business in Rijeka, which is the first constituent institution of the University of Rijeka to implement EMI. In addition to six Croatian-taught study tracks, the English-taught study track “International Business” was introduced at the undergraduate level in 2011, and at the graduate level in 2014. A postgraduate English-taught programme was launched in 2017. The undergraduate level under study lasts for six semesters and carries 180 ECTS points. The English-taught track enrolls 50 students each year, while Croatian-taught tracks enrol 300 students per year (50 per track).

3.2. Aims and research questions

The goal of this study is to investigate whether EMI students' general and business English language proficiency levels and the self-assessment of their English language skills are higher at the end than at the beginning of their undergraduate studies. The study also aims to compare their language proficiency, self-assessment and progress with those of non-EMI students. Finally, the aim of the study is to enquire into students' expectations (fulfilment) regarding their English language progress due to EMI and regarding the utility of English for specific purposes (ESP) courses.

In order to attain these goals, the study addresses the following research questions:

1. Are EMI students' general English language proficiency levels at the beginning and the end of their undergraduate studies higher than those of non-EMI students?
2. Do EMI and non-EMI students improve their general English language proficiency during their undergraduate studies?

3. Is EMI students' business English knowledge at the beginning and the end of their undergraduate studies greater than that of non-EMI students?
4. Do EMI and non-EMI students develop their business English knowledge during their undergraduate studies?
5. Is EMI students' self-assessment of their English language skills higher than that of non-EMI students at the beginning and the end of their undergraduate studies?
6. Do FYS expect that their English proficiency will develop due to EMI and that their ESP courses will be useful?
7. Are TYS' expectations concerning language proficiency development and ESP courses fulfilled?

3.3. Research instruments and procedures

This study adopted a pre-post mixed-method approach spanning three years of the participants' undergraduate studies. For the purposes of data collection, five research instruments were used at the beginning and the end of their studies to investigate students' language proficiency, progress, self-assessment and expectations (fulfilment). First, the students were asked to complete a questionnaire where they reported on their previous English learning, as well as on the school they attended and the level of English they chose in their school-leaving examination. Then they self-assessed their English language skills – listening comprehension, reading comprehension, oral interaction, oral production and writing – using the *Common European Framework of Reference for Languages* (CEFR) scale ranging from A1 to C2 (Council of Europe 2001). The questionnaire was designed and answered in Croatian. After that, they were given the Oxford Quick Placement test (OPT), as well as a C-test, which was designed by the authors of the study, with the purpose of testing their general English proficiency. The C-test, which is commonly used for estimating general language proficiency (Klein-Braley 1997), comprised five short texts about different topics where the second half of every second word was missing, starting from the second sentence (cf. Klein-Braley and Raatz 1984). The texts were developed to be aligned with the target group's proficiency level, as judged by the authors,

the first of whom was their ESP teacher. The following is a paragraph from the C-test:

The fourth week in September is National Dog Week in the USA, a week dedicated to our four-legged companions. Lots of _____ people sh _____ their li _____ with th _____ animals; so _____ dogs li _____ outside a _____ guard do _____, others occ _____ the hou _____ of th _____ owners a _____ are a _____ integral pa _____ of t _____ family. Dur _____ Dog We _____ perhaps w _____ should appre _____ just h _____ much joy we get from our canine companions.

After the C-test, a business English test (BET), also created by the authors of this study, was administered to students, with the intention of testing their business English proficiency in the field of economics, specifically regarding their knowledge of specialist terminology. The BET consisted of five exercises focusing on the discipline-specific vocabulary in the field of economics. The exercises were based on those completed in ESP and content courses within the English-taught study programme. In the first exercise, the students had to choose, among four options, the correct term missing from the sentence. Secondly, they had to fill the gaps with appropriate terminology. In the third exercise, the students were asked whether the statements were true or false (e.g. *Blue chips are values that are expected to rise in value*). Fourthly, they had to write several abbreviations, such as *CEO*, in full. In the fifth exercise, the students were asked to match the listed terms with their definitions.

Lastly, interviews with volunteer students were carried out in order to discuss their expectations (fulfilment) regarding their English language progress due to EMI and regarding the usefulness of ESP courses. More specifically, EMI FYS were asked whether they believed that studying in English would contribute to the development of their English language proficiency. Both EMI and non-EMI FYS were enquired about their expectations regarding the obligatory ESP courses offered during their course of study, that is, whether they thought that the courses would be useful. TYS were asked about the fulfilment of these expectations and their perceptions of the utility of ESP courses. EMI TYS were

asked whether they considered studying in English to have contributed to the development of their English language proficiency.

These instruments were also used in the preliminary study (Čakarun and Drljača Margić 2021). The questionnaire and the tests used with FYS at the beginning of the research were identical to the questionnaire and the tests used with TYS at the end of the research.

Prior to the beginning of the research, the research idea was discussed with the Faculty management, who gave their consent for research to be conducted. As the questionnaire and the language tests were administered in class, the authors of the study explained the aim of the study to the students, and a brief written overview was provided on the title page of the questionnaire. All the students agreed to participate by signing an informed consent form. Students' participation in the research was anonymous, and their answers were anonymised. They were asked to create a password, which consisted of six characters and followed a specific pattern. In this way, each student used the same password both at the beginning and the end of the research, which would enable the comparison of findings. Students who wanted to participate in the interview provided their email address at the end of the questionnaire. To preserve the anonymity of the questionnaire, the part containing the student's email address was detached from the rest of the questionnaire immediately after its submission. Those students were then contacted by the authors of this study, and individual interviews, lasting around 30 minutes with FYS and 30-40 minutes with TYS, were held in Croatian, audio-recorded and subsequently transcribed.

The quantitative data collected via language tests and the questionnaire were statistically analysed using Stata software. For the purposes of statistical analysis, all quantitative data had to be coded as numeric and string variables. Therefore, the self-assessment of students' English language skills on the CEFR scales ranging from A1 to C2 was coded as a numeric variable, that is, the levels were coded into numbers: A1 – 1, A2 – 2, B1 – 3, B2 – 4, C1 – 5 and C2 – 6. Although the students self-assessed separate English language skills, such as writing or listening comprehension, in the analysis of results only the overall mean was taken into account. Independent t-tests were run to determine the statistical significance of the differences between the self-assessment values and test results of EMI and non-EMI FYS and TYS. A p-value smaller than 0.05 suggested the

statistical significance of the findings. Initially, the normality of data distribution was investigated and it was determined that the data were not distributed normally. Therefore, the t-test results were re-examined with the two-sample Wilcoxon rank-sum (Mann-Whitney) test, which confirmed the results of the t-tests.

As for the qualitative data, all interviews were audio-recorded and transcribed. The data were analysed using thematic analysis. The students' responses were carefully read several times, and the data were manually coded by the authors to identify themes. Relevant excerpts from students' responses were selected, translated into English and incorporated into the analysis of the results.

3.4. Participants

The study included one generation of undergraduate EMI students, who enrolled in the English-taught study programme in the academic year 2019/2020 and finished the undergraduate level in 2021/2022. It also involved the same generation of non-EMI students. Regarding FYS, 256 (40 EMI and 216 non-EMI students) completed the questionnaire, and 197 (35 EMI and 162 non-EMI students) completed the language tests. As for TYS, 141 (23 EMI and 118 non-EMI students) completed both the questionnaire and the tests. Although the participants belong to one generation of students, as noted above, the questionnaire and the tests were not completed by the same number of students at the beginning and the end of their studies. Therefore, the statistical analysis was performed for each year respectively. The interview sample comprised 24 FYS (9 EMI and 15 non-EMI) and 26 TYS (8 EMI and 18 non-EMI).

Both EMI and non-EMI students took the same number of content courses, as well as ESP courses during their course of study. Both groups of students had two obligatory ESP courses, *Business English 1* and *Business English 2*, during their first year of study. Each course comprised two 45-minute classes per week, in total 60 classes during 30 weeks. Additionally, non-EMI students could attend three elective ESP courses in their second and third years of study. These courses also included two classes per week and enrolled up to 50 students per course.

All the participants were Croatians who had learned English for about 12 years before they enrolled in the university. Regarding their previous education, 12 (30%) EMI FYS attended a vocational secondary school, and 28 (70%) a grammar school. Concerning non-EMI students, 129 (60%) FYS attended a vocational secondary school, whereas 87 (40%) of them went to a grammar school. With regard to third-year students, six (26%) EMI TYS attended a vocational secondary school, and 17 (74%) went to a grammar school. As for non-EMI TYS, 64 (54%) attended a vocational secondary school, and 54 (46%) a grammar school.

In relation to the level of English in the national school-leaving examination, among FYS, 37 (92.5%) EMI students chose the higher level, and three (7.5%) the basic level. Out of non-EMI students, 102 (47.2%) opted for the higher level, and 103 (47.7%) for the basic level. Eleven students (5.1%) did not provide an answer to that question. Among TYS, all EMI students took a test in higher-level English. As for non-EMI students, 74 (63%) chose the higher level of English, and 42 (36%) the basic one, while two students (1%) did not answer that question. In addition, two (8.6%) EMI and five (4.2%) non-EMI TYS took part in a student mobility programme during the course of their undergraduate studies.

4. Results

This section presents the results of the students' self-assessment and the language tests, as well as their language-related expectations and perceptions. In subsections 4.1 and 4.2, FYS' and TYS' self-assessment and language test results are presented respectively. Subsection 4.3 includes the comparison of these results, and subsection 4.4 reveals EMI students' expectations (fulfilment) regarding their English language progress due to EMI and regarding ESP courses.

4.1. Self-assessment and language test results of EMI and non-EMI first-year students

Concerning the self-assessment of FYS on a scale from A1 (coded as 1) to C2 (coded as 6) according to the CEFR (Council of Europe 2001), the mean for EMI students is 4.30 (corresponding to the B2 level), and for non-EMI students 3.56

(corresponding to the B2 level). These means differ by 0.74 points, and the difference is statistically significant.

Regarding the average number of points obtained in the OPT, EMI students obtained 45.05 points (out of 60), whereas non-EMI students achieved 36.17 points. These results are statistically significant by 8.88 points.

When it comes to the levels achieved in the OPT, the mean for EMI students is 4.25 (corresponding to the B2 level), and the mean for non-EMI students is 3.24 (corresponding to the B1 level). The difference of 1.01 points is statistically significant.

With respect to the results of the C-test, EMI students obtained 70.51 points (out of 100), while non-EMI students obtained 49.45 points on average. There is a statistically significant difference of 21.06 points.

With reference to the results of the BET, EMI students achieved 11.88 points (out of 30), and non-EMI students obtained 8.34 points on average. The difference of 3.54 points is also statistically significant.

An overview of FYS' results is given in Table 1.

Table 1. The results of the self-assessment and the language tests of EMI and non-EMI FYS.

Test	Group	Mean	Standard deviation	Difference	Significance/ /p-value
Self-assessment	EMI	4.30	0.93	0.74***	0.002
	Non-EMI	3.56	1.08		
OPT (points)	EMI	45.05	7.85	8.88***	0.00
	Non-EMI	36.17	9.96		
OPT (level)	EMI	4.25	0.98	1.01***	0.00
	Non-EMI	3.24	1.11		
C-test	EMI	70.51	11.97	21.06***	0.00
	Non-EMI	49.45	18.71		
BET	EMI	11.88	4.44	3.54***	0.00
	Non-EMI	8.34	4.07		

Note. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

4.2. Self-assessment and language test results of EMI and non-EMI third-year students

Regarding the self-assessment of TYS according to the CEFR, the mean for EMI students is 5.17 (corresponding to the C1 level), and for non-EMI students 4.08 (corresponding to the B2 level). These results are statistically significant by 1.09 points.

In relation to the average number of points obtained in the OPT, EMI students obtained 49.21 points (out of 60), whereas non-EMI students obtained 40.05 points. The difference of 9.16 points is statistically significant.

Concerning the levels achieved in the OPT, the mean for EMI students is 4.82 (corresponding to the C1 level), and the mean for non-EMI students is 3.74 (corresponding to the B2 level). The difference of 1.08 points is statistically significant.

As for the average number of points obtained in the C-test, EMI students obtained 77.30 points (out of 100), while non-EMI students obtained 57.95 points. The difference of 19.35 points is statistically significant.

When it comes to the results of the BET, EMI students achieved 21.91 points (out of 30), and non-EMI students obtained 16.70 points on average. These means differ by 5.21 points, and the difference is statistically significant.

The summary of TYS' results is presented in Table 2.

Table 2. The results of the self-assessment and the language tests of EMI and non-EMI TYS.

Test	Group	Mean	Standard deviation	Difference	Significance/ /p-value
Self-assessment	EMI	5.17	0.61	1.09***	0.00
	Non-EMI	4.08	1.04		
OPT (points)	EMI	49.21	5.69	9.16***	0.0001
	Non-EMI	40.05	10.40		
OPT (level)	EMI	4.82	0.88	1.08***	0.0001
	Non-EMI	3.74	1.19		
C-test	EMI	77.30	13.20	19.35***	0.00
	Non-EMI	57.95	21.18		

BET	EMI	21.91	2.93	5.21***	0.0001
	Non-EMI	16.70	5.91		

Note. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

4.3. Comparison of EMI and non-EMI FYS' and TYS' self-assessment and language test results

As for the results of EMI students' self-assessment, the rise of 0.87 points (from FYS' mean of 4.30 – B2 level – to TYS' mean of 5.17 – C1 level) is statistically significant. With respect to non-EMI students, the rise of 0.52 points (from FYS' mean of 3.56 – B2 level – to TYS' mean of 4.08 – B2 level) is also statistically significant.

When comparing the results of the OPT, for EMI students, the increase of 4.16 points (from FYS' 45.05 points on average to TYS' 49.21) is statistically significant. Likewise, concerning non-EMI students, the increase of 3.88 points (from FYS' 36.17 points on average to TYS' 40.05) is statistically significant.

With reference to the OPT levels, the 0.57-point rise for EMI students (between FYS' 4.25 – B2 level – and TYS' 4.82 – C1 level) is statistically significant. In regard to non-EMI students, the difference of 0.50 points (between FYS' 3.24 – B1 level – and TYS' 3.74 – B2 level) is also statistically significant.

As to the C-test results, for EMI students, the growth of 6.79 points (from FYS' 70.51 points on average to TYS' 77.30) is statistically significant. In like manner, regarding non-EMI students, the growth of 8.50 points (from FYS' 49.45 points on average to TYS' 57.95) is statistically significant.

With respect to the results of the BET, the 10.03-point increase for EMI students (from FYS' 11.88 points on average to TYS' 21.91) is statistically significant. As regards the average number of points obtained by non-EMI students, the increase of 8.36 points (from FYS' 8.34 to TYS' 16.70) is also statistically significant.

An overview of all results is provided in Table 3.

Table 3. Comparison of the results of the self-assessment and the language tests of EMI and non-EMI FYS and TYS.

Test	Group	Year	Mean	Standard deviation	Difference	Significance/ /p-value
Self-assessment	EMI	1	4.30	0.93	0.87***	0.00
		3	5.17	0.61		
	Non-EMI	1	3.56	1.08	0.52***	
		3	4.08	1.04		
OPT (points)	EMI	1	45.05	7.85	4.16*	0.0330
		3	49.21	5.69		
	Non-EMI	1	36.17	9.96	3.88*	
		3	40.05	10.40		
OPT (level)	EMI	1	4.25	0.98	0.57*	0.0288
		3	4.82	0.88		
	Non-EMI	1	3.24	1.11	0.50***	
		3	3.74	1.19		
C-test	EMI	1	70.51	11.97	6.79*	0.0473
		3	77.30	13.20		
	Non-EMI	1	49.45	18.71	8.50***	
		3	57.95	21.18		
BET	EMI	1	11.88	4.44	10.03***	0.00
		3	21.91	2.93		
	Non-EMI	1	8.34	4.07	8.36***	
		3	16.70	5.91		

Note. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

4.4. Students' expectations regarding their English language development and ESP courses

Concerning EMI students' views on their English language development due to EMI, EMI FYS expect the improvement in their English language knowledge, including the improvement in their (discipline-specific) vocabulary, communication skills and grammar knowledge. The students' responses were originally written in Croatian, and translated verbatim by the authors of this paper.

My studies will contribute to my English language knowledge because I will learn new words and phrases in English and expand my vocabulary. (3, EMI FY)

My English will improve in all aspects: understanding, communication, grammar... (37, EMI FY)

With regard to EMI TYS, they mostly confirm the views of FYS, describing the improvement in their overall proficiency, (discipline-specific) vocabulary, communication skills and grammar knowledge. Around 20% of students, however, believe that their expectations concerning their English language development due to EMI were not fulfilled, mostly due to their teachers' insufficient English language proficiency.

I was forced to use the language every day. I had to read and learn from literature in English, which improved my English language command. (10, EMI TY)

I can say that studying in English has extended my vocabulary range and that I am familiar with more discipline-specific terms now. (5, EMI TY)

I can't say that my expectations have been fulfilled. I think that teachers should work on their English language and encourage communication with students in class, instead of avoiding it. (17, EMI TY)

As for students' expectations regarding the usefulness of the obligatory ESP courses offered during their course of study, EMI FYS expect them to be useful, providing the necessary support for their content courses.

Business English will be useful because in our other courses teachers do not explain all new words. Besides, in Business English we will revise grammar and improve our communication skills. (40, EMI FY)

I think Business English will be useful because it will help us expand our vocabulary. If we are acquainted with discipline-specific vocabulary, it is easier to discuss topics in economics in English. (7, EMI FY)

EMI TYS confirm that ESP courses enhanced content comprehension and acquisition in other courses.

I think the courses were really useful during our first year of study. I don't have a problem with English in general, but I did have problems with business English. In those courses, vocabulary was explained in a simpler and more practical manner than in other courses. That formed a sound basis for content comprehension. (10, EMI TY)

In Business English classes we covered some pretty important basic discipline-specific vocabulary items. For example, when we later took a course in accounting, I was already familiar with some vocabulary, which helped me understand what the course was about. (15, EMI TY)

As for non-EMI students and their opinions on the usefulness of the obligatory ESP courses offered during their course of study, non-EMI FYS expect them to be useful and contribute to the development of their English language knowledge, particularly when it comes to (discipline-specific) vocabulary and communication skills.

My English language knowledge will certainly improve. I will learn some new discipline-specific words and phrases. (216, non-EMI FY)

They will help us acquire new vocabulary and develop our communication skills. I think they will broaden our English language knowledge in general. (87, non-EMI FY)

Non-EMI TYS affirm that ESP courses have contributed to the development of their English language knowledge in general, as well as to the development of their (discipline-specific) vocabulary, communication skills and grammar knowledge. Eight per cent of students, however, hold that there was no improvement in their English language knowledge due to the insufficient number of ESP courses taken during their course of study.

I expected to acquire vocabulary related to economics, which I could then relate to the content courses in Croatian, and I can say my expectations have been fulfilled. (62, non-EMI TY)

My expectations are met. We revised grammar, but also expanded our vocabulary with new discipline-specific items. (82, non-EMI TY)

I took only the obligatory ESP courses in our first year of study and I don't think that contributed to my English language knowledge. (99, non-EMI TY)

5. Discussion

The self-assessment and language test results obtained from EMI and non-EMI FYS show that at the beginning of their studies EMI students have better general and business English language knowledge and self-assess their English language skills higher than non-EMI students. As already said, the majority of EMI FYS come from grammar schools, where more time is devoted to English language learning than in vocational schools, which are more frequently attended by non-EMI students. Consequently, more than 90% of EMI students took a test in higher-level English in the national school-leaving examination. Higher EMI students' self-assessment of their language skills than that of non-EMI students is also reported by Drljača Margić and Vodopija-Krstanović (2017), who explain that EMI students rarely share non-EMI students' concerns about language cha-

allenges related to EMI. The authors attribute that to the fact that English-taught study programmes are usually attended by students with higher English language proficiency. This, however, does not interfere with the fact that one of the main reasons for enrolling in EMI is the development of English language skills (cf. Iwaniec and Wang 2022; Wu, Lu and Yuan 2024). Students see EMI as a convenient arena for further improvement of their English language proficiency, where they are immersed in language and where by learning and discussing content through English they develop their language skills.

At the end of their studies, EMI students also achieve better general and business language test results than non-EMI students, and their self-assessment mean is higher. It is also worth mentioning that both at the beginning and the end of the research, the language levels indicated in students' self-assessments largely align with their OPT-measured levels. When analysing the increase in their self-assessment and the progress made in the language tests, two observations can be made. First, regarding their self-assessment means, while non-EMI students remained at the same English language level (B2), EMI students progressed from the B2 to the C1 level. In other words, although a rise in language self-assessment was reported by both EMI and non-EMI students, EMI students believe their language command to have improved more than their non-EMI counterparts. The OPT levels also indicate an increase for both EMI and non-EMI students. More precisely, non-EMI students progressed from the B1 to the B2 level during their undergraduate studies, whereas EMI students progressed from the B2 to the C1 level. The increase is similar and statistically significant for both groups. As expected, EMI students progressed to a higher level than non-EMI students as their starting position indicated higher language proficiency. Second, the results of the language tests point to a similar progress of EMI and non-EMI students in the OPT, better progress of non-EMI students in the C-test and greater progress of EMI students in the BET. These findings to an extent corroborate the findings of the preliminary study, where non-EMI students progressed better in general English, and EMI students in business English (Čakarun and Drljača Margić 2021). EMI students' better business English language knowledge is not surprising given their continuous and comprehensive exposure to disciplinary terminology and discourse in all their classes. On the other hand, the similar progress of EMI and non-EMI students in general English may suggest that improvements in general English proficiency extend beyond the influence of the

medium of instruction. Young people today are extremely exposed to English, primarily through the (social) media (Yadav 2021), and their language of education does not seem to have a strong effect on how and to what extent their general language proficiency will develop.

The context in which this research was conducted is specific because EMI students complete two obligatory ESP courses during their first year of study. In other words, EMI students are provided with language support, which is usually not offered in English-taught study programmes (Macaro et al. 2018). According to the data gathered from interviews with students, EMI FYS have positive expectations regarding the development of their English language proficiency due to EMI, and both EMI and non-EMI FYS have favourable expectations regarding the utility of ESP courses. These optimistic expectations are reported to have been fulfilled by the large majority of EMI TYS. EMI students attribute their (business) English progress to enrolment in an English-taught study programme, where they are exposed to and use English on a daily basis in their content courses, as well as to their ESP courses. The latter are regarded to be of great importance for EMI students, particularly at the beginning of their studies. They serve as language scaffolding for content courses because in ESP courses, an explicit focus is given to terminology and disciplinary discourse, and they include language practice activities. ESP courses involve revising and extending prior knowledge, expanding students' lexical repertoire, fostering communication skills and enhancing students' awareness of the distinctive features of disciplinary discourse. More thorough explanation of terminology by language experts in ESP courses makes it easier for students to understand different concepts and phenomena in other classes, where the focus on the language per se is often missing or insufficient (cf. Costa and Mastellotto 2022). This is in line with Arnó-Macià, Aguilar-Pérez and Tatzl (2020), who describe students' satisfaction with ESP courses, as they help them acquire discipline-specific terminology and become linguistically equipped for EMI. Similarly, Krasauskyte-Sierra Ruiz and Chapman (2025) emphasise the importance of ESP in addressing students' needs for language support while advancing their overall language proficiency.

It might be inferred from the findings that EMI students' daily exposure to the English language in class and its use for study purposes (e.g. writing seminar papers and preparing for exams), as well as language support they receive in the

form of ESP courses, result in their better knowledge of business English than the one non-EMI students have. Along the same lines, Lei and Hu (2014) and Chung and Lo (2023) find EMI in combination with ESP conducive to students' (specific) language development.

6. Conclusion

The present study addresses an important, largely underexplored aspect of higher education in English. Although students' English language improvement has been quite frequently mentioned in discussions and literature on EMI, only few studies actually delved into the topic and approached it empirically, and even fewer included a comparison non-EMI group. Hence this study, whose pre-post design, employing five research instruments at the beginning and the end of the participants' undergraduate studies, allowed us to show an increase in students' English language proficiency and their self-assessment scores. The findings indicate that both general and business English language proficiencies of EMI students are improved and greater than those of non-EMI students, which is aligned with the self-assessment of their English language skills. They also show that EMI and non-EMI students similarly progress in general English, while EMI students progress better in business English. The findings thus suggest that involvement in EMI has an impact on both students' English language proficiencies. However, while EMI serves as the primary, if not exclusive, environment for business English development, the outside-university context may play a greater role in general English improvement.

The results also indicate that both groups of students acknowledge the importance of their ESP courses as a form of language support that bolsters both EMI and non-EMI students' language development, and facilitates EMI students' content comprehension in other courses. For the latter, these courses are particularly important at the beginning of their studies, when they experience the transition from general English learned in high school to discipline-specific English necessary to understand and discuss their field of study. However, as already said, the relevance of an explicit focus on language in EMI is rarely recognised. Consequently, language experts are seldom engaged to focus on students devel-

oping their disciplinary literacy, and content teachers do not feel comfortable dealing with language or responsible for students' language progress (cf. Airey 2012; Ting 2022). The findings of this study could influence the managements' and language policy makers' decisions to introduce ESP courses for EMI students, and in this way benefit students and content teachers. They could also prompt content teachers to give more attention to language, in terms of a better introduction and explanation of relevant terminology and disciplinary discourse. Overall, the results of this study could be of importance to scholars who are interested in the field of EMI, present and prospective EMI students, content teachers, ESP teachers, members of university management boards and policy makers.

Finally, since this study was limited to one context, future research should involve a larger number of higher education institutions and participating students, which would provide more valuable insights and enable the comparison of data. Future endeavours could also include the development of a standardised set of tests to be able to investigate students' language advancement in a uniform manner across different disciplines and institutions.

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Jezični napredak studenata u engleskome kao jeziku visokoškolske nastave: *pre-post* analiza

Sažetak

Poboljšanje jezičnoga umijeća studenata u engleskome smatra se jednom od najvažnijih prednosti engleskoga kao jezika visokoškolske nastave (EJVIN). Međutim, vrlo mali broj studija empirijski ispituje ovu temu. Cilj je ovoga istraživanja ispitati jezično umijeće EJVIN-studenata u engleskome na početku i kraju njihova prijediplomskog studija na Ekonomskom fakultetu u Rijeci te usporediti njihovo umijeće i napredak s umijećem i napretkom studenata koji studiraju na hrvatskome jeziku (HJVIN-studenti). Istraživanje je provedeno s 256 studenata prve godine i 141 studentom treće godine. Istraživački su instrumenti uključivali upitnik kojim su se ispitala prethodna iskustva studenata vezana uz učenje engleskoga jezika kao i njihova samoprocjena jezičnih vještina u engleskome, Oxford Quick Placement test, C-test i test poslovnoga engleskog jezika. Potom su provedeni intervjui u kojima se sa studentima razgovaralo o njihovim očekivanjima vezanim uz jezični napredak u engleskome i korisnosti kolegija iz engleskoga za posebne namjene. Rezultati testova analizirani su pomoću nezavisnih t-testova kako bi se utvrdila statistička značajnost razlika između EJVIN- i HJVIN-studenata prve i treće godine.

Rezultati pokazuju da EJVIN-studenti imaju bolje jezično umijeće u engleskome od HJVIN-studenata na početku i kraju prijediplomskoga studija. Obje skupine studenata

ostvaruju sličan napredak u općemu engleskom jeziku, dok EJVIN-studenti bolje napreduju u poslovnome engleskom jeziku. Većina EJVIN-studenata pripisuje EJVIN-u napredak u (poslovnome) engleskom jeziku, no uviđaju i važnost kolegija iz engleskoga za posebne namjene, koji su im ponuđeni tijekom studija i koji stavljajući eksplicitni fokus na jezik studentima služe kao potpora za stručne kolegije.

Keywords: English-medium instruction, English for specific purposes, English language progress, English language proficiency, students

Ključne riječi: engleski kao jezik visokoškolske nastave, engleski za posebne namjene, jezični napredak u engleskome, jezično umijeće u engleskome, studenti