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LUCAS HENRIQUE FOGAÇA MARENGO

THE ROLE OF ENGLISH LANGUAGE PROFICIENCY IN BRAZILIAN EMI PRACTICES

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Orientadora: Profª Drª Simone Sarmento
Coorientador: Drª Ana Beatriz Arêas da Luz Fontes

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Resumo

O uso da língua inglesa tem crescido globalmente de forma exponencial ao longo das últimas décadas nos cenários acadêmicos (Dearden, 2014; Macaro, 2016; Altbach & Knight, 2007). Dentro dessa realidade, Inglês como Meio de Instrução (*English as a Medium of Instruction*, EMI) surge como uma abordagem que foca no ensino dos conteúdos das várias áreas do conhecimento por meio da língua inglesa em países nos quais ela não é a primeira língua (L1) (Dearden, 2014; Gimenez et al., 2018; Hu, 2008; Macaro, 2015; Altbach & Knight, 2007). Nesse sentido, práticas EMI não necessariamente focam no ensino de inglês, e sim no conteúdo, mas podem também promover o aprendizado espontâneo e incidental da língua por meio de práticas autênticas (Hulstijn, 2013; Muñoz, 2012; Pusey, 2020). Dentro deste contexto, os objetivos do estudo são analisar o grau de adesão às práticas EMI nas áreas do conhecimento, como os professores auto avaliam suas proficiências em inglês e como a proficiência na língua se correlaciona à adesão de práticas EMI em sala de aula. Para tanto, busca-se responder três questões de pesquisa: 1) como as diferentes áreas do conhecimento utilizam EMI na suas Instituições de Ensino Superior (IES) brasileiras?; 2) como os professores das IES brasileiras auto avaliam seus níveis de inglês? e 3) como esses níveis de proficiência se relacionam com as práticas EMI nas IES brasileiras. Para as diferenças de proficiência entre as áreas, usou-se planilhas Excel para organizar os dados, criando abas para cada uma das oito áreas do conhecimento, colocando, ao lado de cada respondente, números de 1 (sem conhecimento da língua inglesa) a 4 (conhecimento avançado) de acordo com as respostas deles. Usando o software SPSS (IBM Corp, 2021), análises de correlações estatísticas foram feitas a fim de investigar a relação de proficiência com a implementação de práticas EMI no Ensino Superior brasileiro. Os resultados apontam que os professores se consideram, em média, usuários com níveis de proficiência entre intermediários a avançados na língua inglesa. Em

segundo lugar, EMI ainda é incipiente em cenário acadêmico nacional (Gimenez et al., 2018; Kirkpatrick, 2014; Martinez, 2016; Pusey, 2020), apresentando baixa adesão à prática nas diferentes das áreas do conhecimento, mas com *Linguística, letras e artes* apresentando a maior adesão, com 25,3% e *Ciências humanas* a menor, com 6%. Por fim, as proficiências auto avaliadas desses professores correlacionadas com suas práticas EMI revelam que quanto mais alta é a proficiência avaliada, mais os professores aderem a práticas de Inglês como Meio de Instrução.

Palavras-chave: EMI – proficiência – língua inglesa – áreas do conhecimento – Ensino Superior brasileiro

Abstract

The use of English has been increasing exponentially all around the globe in the last decades in academic settings (Dearden, 2014; Macaro, 2016; Altbach & Knight, 2007). Within this reality, English as a Medium of Instruction (EMI) appears as an approach with a focus on the contents of the several fields of knowledge through the use of the English language in countries where it is not the first language (L1) (Dearden, 2014; Gimenez et al., 2018; Hu, 2008; Macaro, 2015; Altbach & Knight, 2007). In this way, EMI practices are not necessarily focused on language teaching but rather on the content through the language; however, it can also promote incidental language learning via authentic practices (Hulstijn, 2013; Muñoz, 2012; Pusey, 2020). Thus, the study's objectives are to analyze the adherence degree to EMI practices throughout the different fields of knowledge, how the professors self-rate their English proficiencies, and how language proficiency correlates to the adhesion of EMI practices in the classroom. For that, three research questions are raised: 1) to what extent do the different fields of knowledge use EMI in Brazilian HE?; 2) what are the general self-rated English proficiency levels of HE professors in Brazil? and 3) how do these self-rated proficiency levels relate to EMI practices at the undergraduate and graduate levels?. For the differences in proficiency levels among the fields of knowledge, Excel spreadsheets were used to organize the data by creating tabs for each of the eight fields, adding, beside each respondent, their respective proficiency level from 1 (no English knowledge) to 4 (advanced English knowledge), according to their answers. Using SPSS (IBM Corp, 2021), correlation analyses were carried out to investigate the association between English proficiency and EMI in professors' classroom practices. The results show that the professors consider themselves users with intermediate to advanced language knowledge. Furthermore, EMI is still an incipient practice in the national academic scenario (Gimenez et al., 2018; Kirkpatrick, 2014;

Martinez, 2016; Pusey, 2020), showing low adherence to EMI practices in all of the eight fields of knowledge, but demonstrating that the field of *Linguistics, Literature, and Arts* presents the highest adherence, with 25,3% and *Human Sciences* demonstrating the lowest adherence, with 6%. Ultimately, the self-rated proficiency levels of these professors correlated to their EMI practices reveal that the higher the proficiency level, the more they utilize EMI practices.

Keywords: EMI – proficiency – English language – fields of knowledge – Brazilian Higher Education

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Chapter 1: Introduction

English has increased its role in Higher Education (HE) due to oncoming internationalization processes in the last few years (Dearden, 2014; Macaro, 2016; Altbach & Knight, 2007). In this context, English as a Medium of Instruction (EMI) emerges as an internationalization tool for the Higher Education Institutions (HEIs) once there is a need to equip students and professors for the globalizing scientific, technical, and commercial communities in which English has become increasingly predominant (van der Walt, 2013).

In the present study, EMI is considered a practice connected to other terms in the content-language learning spectrum, e.g., Content and Language Integrated Learning (CLIL) and English for Academic Purposes (EAP), which will be presented and discussed in the following sections (Airey, 2016; Macaro et al., 2017; Macaro, 2018). This investigation stems from the research project named *The use of the English Language in Brazilian Higher Education*, which gathered data from professors holding a Ph.D. and associated with Brazilian HEI through an electronic questionnaire. The data were firstly collected for the dissertation by Laura Knijnik Baumvol in 2018, called *Language practices for knowledge production and dissemination: the case of Brazil*, under the supervision of Professor Simone Sarmento, the same as in this study. I was, at the time, a junior research assistant and helped in the process of collecting the data and with the data trimming. As the title of the dissertation mentions, Baumvol (2018) focused on knowledge production and which languages are used for these practices in Brazil. Analyzing curriculums on the Lattes Platform and matching these data with an electronic questionnaire with over 5,000 respondents, the researcher delineated how languages, including English, are used for publications. From this moment on, I have not stopped researching and working with EMI since the questionnaire mentioned above ended up producing invaluable data on EMI matters.

Since I first started as a junior researcher in 2017, I have been dealing with quantitative and qualitative data analysis, an experience which culminated in my final undergraduate monography, called *EMI no Ensino Superior Brasileiro: um estudo da percepção de docentes*. This final paper analyzed how professors from HE in Brazil interpreted EMI practices. A quali-quantitative methodology was applied and analyzed via a coding process (Saldaña, 2013) to sort professors' perceptions (qualitative methodology) into categories whose number of occurrences was later quantified (quantitative methodology). In the first moment, the respondents had to answer the question *what are the benefits of teaching in English?* The findings showed that the most selected option was *the Brazilian students have the opportunity to improve their English language proficiency* (64% of the respondents selected this option). The least chosen option was that *there are no benefits in teaching in English* (only 5,3% of responses). For the open question, *what should be done by your HEI in order to implement more EMI classes?*, a coding process was conducted after a close reading of all the over 3,000 responses. Seven categories with suggestions for EMI implementation emerged after coding: *training for professors*, *language education for professors*, *language education for students*, *more incentives for professors*, *stimuli in general and English teaching for the academic community*, *having more foreign students*, and *diminishing the resistance to English*. Also, a category emerged with responses from participants who opposed the implementation of EMI. The most recurring category was *training for professors*, followed by *language education for professors* and *language education for students* (Marengo, 2019).

Right after my graduation, I started my Master's in Applied Linguistics. During my time as a master's student at Universidade Federal do Rio Grande do Sul (UFRGS), I was invited to be an English Teaching Assistant (ETA) at the Physics Department of the university in an

Astrophysics discipline named *Fundamentos de Astronomia e Astrofísica*, under the supervision of professor Ana Leonor Chies Santiago Santos, together with her Astrophysics intern, in preparing and delivering EMI classes for this course. My role in this course was to give linguistic support concerning the English language, mainly in preparing pedagogical tasks and conducting some of the activities, focusing on essential vocabulary and language structures for the course. The proofreading of English assignments by the students was also a part of my duties. I also participated in the oral exams, helping evaluate students' interactions in English.

Considering my path as a junior researcher during undergraduate studies, the production of my final monography already dealing with EMI, and my hands-on experience with EMI as an ETA for the Astrophysics discipline, I am interested in this topic come naturally, culminating in the present master's thesis. In this way, during my time as a master's student in the program, I knew that EMI matters would still be the main topic of my research.

Thus, using the data gathered for *The use of the English Language in Brazilian Higher Education umbrella research, the present thesis* aims to shed light on EMI practices in Brazil, considering how professors' English language proficiency levels relate to their perceived use of English in class. More specifically, how self-rated proficiency correlates to the choice of bibliographical references, the language used by the professors and their students, and the language used in students' assignments and tests. English language proficiency is believed to be one of the main issues related to EMI practices at Brazilian HE (Gimenez et al., 2018; Graddol, 2006; Martinez & Morgan, 2019; Muñoz, 2012). Another objective of this study is to investigate the extent to which professors from different disciplinary fields have already had any experience teaching EMI courses. Disciplinary differences are also believed to influence the use of English in HE practices (Becher, 1998; Bernstein, 1999; Bolton & Kuteeva, 2012; Kuteeva & Airey,

2014). Thus, investigating the role of proficiency and disciplinary differences in EMI practices on a large scale is of utmost importance, and, to our account, it is an unprecedented study in Brazil.

This thesis is composed of five chapters, including this Introduction. Firstly, a literature review will be presented, showing the different uses of English and additional languages in the classroom, the spread of EMI around the globe, EMI in Brazil, the opportunities and challenges faced by EMI, and the disciplinary differences when it comes to the use of English. After that, the methodology will be delineated, presenting the questions from the study and how the quantitative and correlational analyses were carried out. Then, in chapter four, the data is presented. The chapter compares how different fields of knowledge use the English language in their classes at Brazilian HE. This is followed by the descriptive data regarding professors' *self-rated English language proficiency levels* and *to what extent the English language is used in classrooms by the professors themselves, their students, in the courses' bibliographical references,* and *in tests and assignments.* Next, correlation analyses among the professors' self-rated proficiencies and the four different aspects of the use of English in Brazilian HE classrooms will be considered. After that, analyses of how the four aspects correlate to each other will be conducted. Finally, the research questions will be commented on, and final considerations will be provided.

Chapter 2: Literature Review

This chapter will present the theoretical background for the current study. At first, the concept of English as a Medium of Instruction (EMI) will be provided, displaying its different approaches and situating EMI within similar areas such as Content and Language Integrated Learning (CLIL) and English for Academic Purposes (EAP). Then, EMI implementation policies

will be discussed, followed by the origins of EMI and the use of English at higher education institutions (HEIs) all around the globe. Subsequently, EMI's affairs in Brazil will be explored, showing how it has been performed in this country and providing examples of practices. The advantages and disadvantages of implementing EMI in several different nations will also be brought to light. Finally, an overview of how different fields of knowledge handle English medium practices when it comes to classroom and publication practices will be provided.

2.1 Differentiating the uses of English in the classroom

A range of terms has been used to describe the teaching of so-called content courses in English at the Higher Education (HE) level: "English-medium instruction (EMI), teaching in English (TIE), English-medium education in multilingual university settings (EMEMUS), content and language integrated learning (CLIL), integrating content and language in higher education (ICLHE), etc." (Airey, 2016, p.72). However, some of these terms seem to have never gotten off the ground, such as TIE, EMEMUS, or ICLHE. Thus, this section will mainly explain the contexts in which CLIL and EMI are used.

According to Macaro (2017), EMI refers to the use of English to teach academic subjects in countries or jurisdictions where the first language (L1) of the majority of the population is not English, which is the case in Brazil. CLIL, on the other hand, would not necessarily be about the use of English. However, even though CLIL might theoretically refer to any language, the first 'L' is almost always English (Airey, 2016; Dalton-Puffer & Smit, 2013). In addition, whereas CLIL is concerned with advancing content and language, "EMI does not (necessarily) have that objective" (p.4) since the focus should be chiefly on the content while using English as the medium to teach it.

For Graddol (2016), the two approaches also differ as far as language proficiency is concerned since EMI implies a certain language proficiency level from professors and students, whereas CLIL does not:

> CLIL is an approach to bilingual education in which both curriculum content — such as science or geography — and English are taught together. It differs from simple English-medium education in that the learner is not necessarily expected to have the English proficiency required to cope with the subject before beginning study. (Graddol, 2006, p.86)

It is also important to note that CLIL is often mentioned in primary and secondary education contexts, while EMI is frequently more associated with HE (Dearden, 2014; Mahan, 2022; Urmeneta, 2019). According to Urmeneta (2019), "indeed, schools are institutions where teaching languages, developing educated ways of using them, and focusing on the use and uses of language are primary interdependent goals" (p.9). When interdependent goals are mentioned, authors such as Halliday (1993) mention a multi-faceted view of learning in general, and language learning in particular, as a series of three interconnected processes. These processes are mentioned as learning language, learning through language, and learning about language.

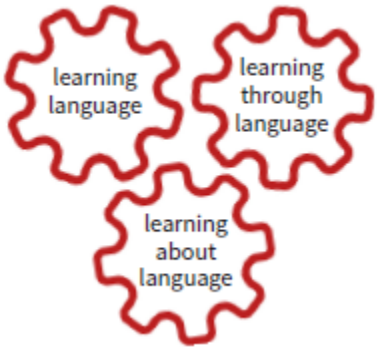

Figure 1. Halliday's model of learning. Source: Urmeneta (2019)

CLIL, which encompasses all the three processes in Halliday's (1993) model, is deemed more approachable in primary and secondary schools since this method can be used in different

disciplines (e.g., science or geography), while it is possible to teach the content, and also teach about the language. Hence, "in CLIL, the content to be covered is the starting point for planning, and teachers and students work together, making the most of all the verbal and nonverbal resources at hand, to understand one another and be understood in relation to the target content" (p.10).

Moreover, CLIL is sometimes viewed as an "umbrella term," encompassing EMI and other educational approaches such as immersion programs, bilingual education, and multilingual education. However, this does not seem to be a consensus. Therefore, in this thesis, CLIL will be taken as an approach at a different point of the spectrum in the language/content continuum compared to EMI (Airey, 2016). This scale includes, in addition to EMI and CLIL, English for Academic Purposes (EAP):

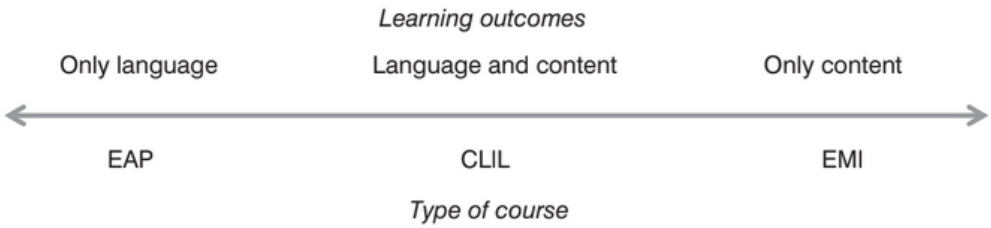

Figure 2. The language/content continuum. Source: Airey (2016)

According to the continuum, EAP courses, with mainly language learning targets, are shown on the left side of the picture. In contrast, EMI courses, with essentially content learning pursuits, are shown on the right. CLIL courses, which combine language and content learning, fall somewhere between these two extremes (Airey, 2016). Subsequently, language is not directly regarded on one end of the spectrum (EMI). The syllabi of such courses include content-related learning outcomes but no straightforward English language-related learning outcomes. For Airey (2016), "language is simply viewed as a tool for teaching that may be substituted by another tool as required — the choice of teaching language is pragmatic and not expected to

affect the content taught to any great degree" (p.73). In other words, in EMI contexts, English is exclusively viewed as the language of course instruction. However, the author points out that this is an artificial division since it would be a fallacy to imagine that content and language could ever be disconnected from each other - they are inevitably intertwined.

Macaro et al. (2017) point out that EMI is a relatively recent subject of study. The fact that researchers and professors label the phenomenon with a variety of terms reveals this fact. Macaro (2018) illustrates the different terms used to refer to EMI:

English medium instruction	Kim & Sohn, 2009; Kang & Park, 2005; Islam, 2013; Huang, 2015; Byun et al., 2011; Dearden, 2015; Macaro, Akincioglu, & Dearden, 2016; Dearden & Macaro, 2016
English-medium instruction	Kim & Shin, 2014; Kim, Tatar, & Choi, 2014; Ghorbani & Alavi, 2014; Cho, 2012; J. Y. H. Chan, 2014; Bolton & Kuteeva, 2012; Rogier, 2012; Studer, 2015; Tatzl, 2011; Yoxsimer Paulsrud, 2014
English medium of instruction	Khan, 2013; Chu, 2005
English as the medium of instruction	Lai, 2013; Ellili-Cherif & Alkhateeb, 2015; British Council/TEPAV, 2015; McMullen, 2014; Yip & Tsang, 2006
English as a medium of instruction	Belhiah & Elhami, 2014; Al-Masheikhi, Al-Mahrooqi, & Denman, 2014; Lueg & Lueg, 2015; Sultana, 2014; Tung, Lam, & Tsang, 1997; Wu, 2006; Vu & Burns, 2014; Tarnopolsky & Goodman, 2014; Ryhan, 2014
English language as medium of instruction	Ismail et al., 2011
English-medium education (English-medium higher education)	Kirkgöz, 2005, 2009; Earls, 2016
English-medium teaching	J. Y. H. Chan, 2014; Byun et al., 2011
English-medium higher education	Hellekjaer, 2010
English-medium courses	Yeh, 2014
English-medium programs	Hengsadeekul, Koul, & Kaewkuekool, 2014; Dafouz, Camacho, & Urquia, 2014
English as the lingua franca medium of instruction	Chapple, 2015; Bjorkman, 2010
English medium content classes	Iyobe, Brown, & Coulson, 2011

Figure 3. Use of different terminologies containing the words 'English' + 'medium.' Source: Macaro (2018)

Macaro (2018) points out that some authors utilize two or three representations of the term EMI even within a single study. He also argues that only a few authors have not used the word 'medium,' showing the examples of Wächter & Maiworm (2014) and Kim & Shin (2014), who respectively used the terms 'English Taught Programmes' and 'English Communication

Education' concerning HE. Consequently, one may question if there are any significant explanations for the terminology differences. Rather than attempting to speculate on possible causes, Macaro (2018) provides definitions of the EMI phenomena by different authors. These definitions, he believes, are even more varied and thus problematic than the various terminologies used to label this method, as seen in Figure 3. In order to exemplify the variation in definitions, an excerpt of the examples brought by Macaro (2018) can be seen in Figure 4 below:

> ... the teaching and learning of content through another language (English).
> (Dafouz, Camacho, & Urquia, 2014, p. 224)
>
> English used as the language of instruction, in particular, where English is not the native language of the students.
> (Kim & Shin, 2014, p. 42)
>
> ... [when] English is the medium of instruction rather than studied as a foreign language.
> (Tarnopolsky & Goodman, 2012, p. 58)
>
> EMI is closely related to content-based instruction.
> (Kang & Park, 2005, p. 157)

Figure 4. Examples of EMI definitions by distinct authors. Source: Macaro (2018)

Macaro (2018) debates that in the EMI literature, there are seldom attempts to define what is actually being discussed with sufficient detail. For him, by reading these articles, it appears that authors roughly know what is being discussed about. Besides, 'English Medium Instruction,' along with other terminologies in Figure 3, are occasionally used interchangeably with terms like 'Foreign language education' in the same article. Some of the possible causes for the different terms and definitions are 1) the positioning of a research paper in a particular journal, and 2) writers might be trying to reach out to readers in a different context to provide their papers with greater external validity.

The process of using English for internationalization goes beyond the strict use of EMI (Baumvol & Sarmento, 2016). Given its importance, English is present in HE in various ways,

pervading multiple social behaviors, especially in light of the significant growth in academic mobility. Factors such as professors' and students' different home languages, whether or not the students share the same native language, the language of the bibliographic references, and the language of instruction are all taken into account (Baumvol & Sarmento, 2016).

Because instruction or learning does not occur vertically from instructors to students but is somewhat influenced by various factors, it is necessary to define 'language of instruction.' For this, Baumvol & Sarmento (2016) point out three different questions regarding the choice of language of instruction: 1) the language(s) used by the professor; 2) the language(s) of the bibliographic references; 3) the language(s) used by the students (see Baumvol & Sarmento, 2016 for more details). The authors illustrate that, for instance, it is relatively usual to see English as the primary language of all course references in specific areas of knowledge. The most relevant Brazilian academic journals and events are entirely in English in some areas. Nevertheless, the professor mainly speaks in Portuguese to discuss these references in the classroom. Still, even if the professor communicates with the students mainly in Portuguese, tests and final papers may be written in English. Regarding these contrasts, there appears to be a continuum of the presence of the English language in the teaching and learning process. From Baumvol & Sarmento's (2016) point of view, EMI is not merely a binary matter in the sense that "EMI is used" or "EMI is not used," but instead a myriad of scenarios in which more (or fewer) people can use English in more (or fewer) contexts within the same classroom and academic practices.

For the purpose of this study, the term English as a Medium of Instruction (EMI) will be used to refer to courses and academic activities in which English is used as the medium of instruction regardless of the content being the only objective or not. As Airey (2016) pointed out,

"content and language are inextricably entwined" (p.73). In this way, even though the official course/activity objectives may refer only to content, it is very likely that language-related issues do come up during classes and will have to be dealt with by the instructor.

2.2 The spread of EMI

The modern origins of implementing curricular subject instruction in an additional language can be traced back to the 1950s as the expansion of the European Economic Community resulted in the formulation of the continent's schools with the mission of providing a multilingual and multicultural education (Barnard, 2014). The initiative's goal was to linguistically prepare students to face the challenges and opportunities of increasingly multicultural societies. At first, CLIL was primarily used in European academic settings. Vu & Burns (2014) point out that "EMI is usually traced to the European content and language integrated learning (CLIL) movement, content-based teaching (CBT) and bilingual education in native English-speaking (NES) contexts" (p.3). However, the EMI approach broadens further from the CLIL umbrella, extending beyond methodology into policy-making and language planning.

In 1985, HE institutions such as the University of Maastricht in the Netherlands began implementing EMI; this Dutch public university launched a bachelor's degree program in international management. Because all of the students were from the Netherlands, the language utilized as a teaching medium at the start of the course was Dutch, but just in the first year. In the successive years, English, German or French were used (Wilkinson, 2013). However, German and French were quickly discarded due to the adoption of a bilingual language policy (Dutch and English). As it progressed, the program was taught entirely in English, leading more institutions across Europe to adapt to the trend, with over 800 EMI programs in operation in 2002. By 2008,

the figure had climbed to almost 2,400, with the majority of the programs residing in Germany, the Netherlands, and Scandinavia (Barnard, 2014; Doiz et al., 2012; Altbach & Knight, 2007). In the case of the Netherlands, Wilkinson & Gabriëls (2021) point out that, after the adoption of the bilingual language policy, “more than half the student population follow programmes in English, with only incidental focus on language goals” (p.3).

Many factors caused the spread of EMI. The initial motivation stemmed from a discerned need to prepare, in diverse countries, for the quickly globalizing economic, scientific, and technical international community in which English was becoming more and more prevalent (van der Walt, 2013). Thus, EMI programs in European universities became appealing to an increasing number of overseas students. For them, learning a language other than English appeared unnecessary, chiefly because most of them had studied English as a second language for several years (Barnard, 2014). In many cases, universities attempt to attract international students to strengthen their global connections, academic image, and competitiveness by launching innovative and inquisitive programs (Barnard, 2014). By the twenty-first century's turn, various British, American, and Australian HE institutions had formed mutual connections with universities in other continents, such as Asia, and other parts of the globe, to mediate or co-teach EMI programs in a variety of fields of knowledge.

Globally, then, the number of EMI programs offered in HE increased exponentially over the previous two decades, with more than 90% of private and 78% of public institutions worldwide allowing it to be used (Curle et al., 2020; Dearden, 2014; Macaro et al., 2018). The fastest-growing regions for EMI are non-Anglophone nations in Europe, Asia, and the Middle East. Since the beginning of the 2000s, there has been an accelerated increase in the number of English-taught programs in Europe, notably at the master’s level, business, and science (Brenn-

White & van Rest, 2013; Curle et al., 2020; Maiworm & Wächter, 2002; Altbach & Knight, 2007, 2014). In Europe, from 2002 to 2007, a rise of 1,000% in English-taught programs has been reported (Maiworm and Wächter, 2002; Altbach & Knight, 2007). Still, geographic distinctions exist even in its original continent, with EMI being more diffused in Northern European countries than in Southern European countries (Hultgren, Jensen & Dimova, 2015). In the case of this continent, the Bologna Agreement, signed in 1999, has a significant impact as a policy for EMI pursuits because it emphasizes the opportunity of movement for HE students across the continent. The Bologna Process aims to provide a more comparable, compatible, and coherent system for European HE by standardizing degrees to facilitate the academic mobility of students and faculty members, as well as the transfer of credits earned in other countries. However, the Bologna process may reinforce the idea that internationalization refers to HE courses taught in English to the detriment of other languages. Thus, English has progressively and increasingly become the HE language in European academic settings, growing into a global phenomenon in the past decades. After Bologna, the number of English-taught programs (ETP) in European HE has increased dramatically, leading new providers, particularly in the Baltic States, to rise alongside the traditional ETP giants in Central West Europe and the Nordic countries specifically (Shimauchi, 2018; Wächter and Maiworm, 2014).

As a result of this fast ETP movement, in many non-English speaking nations, EMI has become an unstoppable force in higher education (Shimauchi, 2018). In places such as Asia, and Europe, as already noted, English has been considered to be progressively becoming the language of internationalization. Coleman (2006) states that the emergence of a world language is an altogether new phenomenon. Shimauchi (2018) describes that Japan's commitment to internationalization, for instance, has resulted in a striking increase in the number of EMI

programs now taking place at universities across the country. According to government data, by 2006, 227 universities (about one-third of the total) offered some type of EMI, and roughly one-quarter of institutions provided undergraduate EMI programs (Bradford, 2013; Brown, 2014; MEXT, 2008, 2009). Another Asian focus for EMI is Saudi Arabia. According to Al-Sultan (2009), some institutions in this country intend to implement EMI to help students improve their English skills, as most graduates have a weak command of the language. In this circumstance, academic staff at some of the country's HE institutions plan to make English the primary medium of instruction for highly sought-after specialties on the job market (Al-Sultan, 2009).

Africa is another continent widely influenced by the English language. In some countries such as Namibia, South Africa, Nigeria, Kenya, and Malawi, it is the official language, either as the primary, as in Nigeria, or one of several in the other mentioned countries. The existence of a wide range of English dialects across the continent also supports the relevance of English (Schmied, 1991; Tamtam et al., 2012). Furthermore, Africa has been exposed to English to a greater extent than Asian countries due to British colonization (except for Singapore and the Philippines). As a result, EMI provides a variety of professional alternatives for the younger generation. Because English is used in transmitting research, education, business, and the arts in many nations, this has influenced the outcome in Africa. Nonetheless, even if the language is used in some areas, some countries are adamant about maintaining their cultural and linguistic identities, such as Libya. This Arabic country is reported to have a low English proficiency level. (Tantam, 2010, 2011; Tantam et al., 2012). It is also crucial to pinpoint that Africa is one of the world's most linguistically diverse continents, with 30% of the world's languages but only 15% of its inhabitants. In Europe, in contrast, there are only 4% of the world's languages despite having over 10% of the population (Clegg & Simpson, 2016; Lewis et al., 2015). Although there

is a wide variety of languages across the African continent, there is also growing popularity of English; as a result, the number of students using their native languages at the HE level has decreased significantly (Tamtam et al., 2012). Ultimately, EMI has been increasing its importance all around the globe. When analyzing its adoption in Europe, Africa, and Asia, it can be stated that EMI has become a popular strategy at universities.

2.3 EMI in Brazil

For Baumvol and Sarmento (2019), it is essential to contextualize the whole EMI scenario in Brazil, considering the processes of internationalization at home (IaH) and the role of additional languages (ALs), particularly the English language, in HEI environments. Starting with IaH, it is critical to indicate that internationalization advancement in Brazil is still embryonic. Not all students and professors have the same opportunities to go abroad and live an academic mobility experience to grasp international knowledge in conventional ways. A more inclusive scenario is necessary for this purpose; in this context, IaH measures were created to benefit a wider audience without the need to leave one's home country. IaH is "a counteract to the increased emphasis on academic mobility and an alternative for a more inclusive internationalization process" (Baumvol and Sarmento, 2019, p.91). However, Baumvol and Sarmento (2019) raise a fundamental question: "why would EMI be important in a developing country such as Brazil?" (p. 95). One of the possible answers to this question comes from authors such as Muñoz (2012), who also points out that the use of English may contribute to establishing an environment that leads to language proficiency development. In this way, EMI could bring further benefits because students and professors can take part in authentic practices that require the use of English. Nevertheless, further studies are needed to address students' and professors'

practical concerns about using EMI in academic and research endeavors in Brazil (Baumvol & Sarmento, 2019; Pusey, 2020). When thinking about internationalization processes, another significant reason to implement EMI is that Brazil is a country of vast dimensions and the only nation in South America whose primary language is Portuguese, putting the country in a kind of linguistic isolation. Thus, being geographically secluded in terms of language, it is believed that Brazil, in all of its vastness, could benefit from adopting EMI in some courses and programs in terms of internationalization, as EMI can provide the tools to interconnect the only Portuguese-speaking country in South America to a far-reaching worldwide academic backdrop.

As EMI is still in its early stages in Brazilian HEIs, the country has the potential to learn from other nations' experiences (Guimarães & Kremer, 2020; Ramos, 2018). Guimarães & Kremer (2020) argue that Brazil "can also innovate in research issues and concerns that are still to be addressed in EMI implementation around the globe" (p.236). Martins (2020) states that "for the effective internationalization of Brazilian Higher Education Institutions, it is necessary to recognize the need for a [trans]formative movement in these institutions" (p.8). This perspective stems from the fact that the globalization of HEIs necessitates pedagogical dynamics in classrooms in which the English language serves as a critical medium for the mediation of teaching and learning activities. Given these pedagogical activities, Brazilian institutions also have the opportunity to take a stand in this transformative movement regarding EMI practices.

Hence, Gimenez et al. (2018) state that "for Brazil to become a significant player in the higher education arena globally, more and more universities need to be able to deliver modules and eventually full courses in the medium of English" (p.6) since the country has an enormous potential in the global and international arena. The implementation of more EMI practices in Brazilian HE has the potential to improve "the quality of their written and spoken English and to

an increasing number of citations which more truly represents the excellence of research undertaken in this, one of the most important of emerging global economies" (Gimenez et al., 2018, p.6).

In order to illustrate EMI practices in Brazil, Gimenez et al. (2018) conducted a survey supported by *Coordenação de Aperfeiçoamento de Pessoal de Nível Superior* (CAPES) for the British Council (2018). The survey was sent out to 270 HEI[1], covering Universities[2], University Centers[3], Colleges[4], and Federal Institutes[5], among others. This research informed that 72 HEIs in Brazil were then planning to offer EMI courses. However, probably more HEIs were planning to do so, as the number of total respondents institutions (*n = 84*) was less than one-third of the total number of HEIs contacted (*n = 270*) and just over 3% of the number of HEI in Brazil (2,608). The types of institutions that provide EMI and also an estimate of HEIs offering EMI and planning to offer EMI are shown in Graphs 1 and 2:

[1] The survey was a joint effort between The British Council and the Brazilian Association of International Education (FAUBAI), thus, only member institutions were contacted.
[2] Institutions covering all areas of knowledge and whose mission includes: teaching, research and extension/outreach activities.
[3] Educational institutions covering all areas of knowledge, with no explicit requirement to undertake research.
[4] Educational institutions covering some areas of knowledge with no explicit requirement to undertake research.
[5] A set of federal institutions, focused on vocational training, for secondary and higher education. Federal Institutes may have Graduate programmes and undertake applied research.

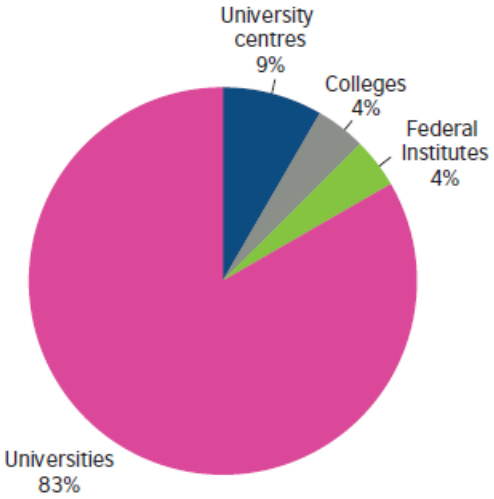

Figure 5. HEIs offering EMI according to their institutional category. Source: Gimenez et al. (2018)

The graph reveals that universities are the type of HEI that offer most EMI courses in the country. This is somehow expected since universities are most likely to promote internationalization activities through postgraduate programs and research partnerships (Gimenez et al., 2018). The same survey shows that only 1,011 courses were offered in the respondents' HEI. Considering the country has over 2,500 HEI, this corresponds to less than a course per HEI. Also, only five programs (one undergraduate and four graduate) were reported to be offered in English. Furthermore, Gimenez et al. (2018) point out that EMI has only been embraced through isolated initiatives of faculty members in Brazil.

Moving forward in the discussion about EMI practices in Brazil, and closely linked to this current study, another crucial matter is English proficiency. Martinez & Morgan (2019) point out that the proficiency level of both instructors and students may be an obstacle to implementing EMI in Brazil. As claimed by data from the now-defunct Languages Without Borders program, which tested approximately 400,000 Brazilian students (and some faculty members), less than 23% of all candidates passed the B2 or higher level of testing. Given such data, the extent to which proficiency influences the implementation of EMI practices in Brazil

should be investigated. According to Martinez & Morgan (2019), “the expansion of internationalization in Brazilian higher education is at least in part dependent upon its ability to increase its engagement with the global academic community” (p.2). Engagement with the global academic community may, in turn, be partially dependent on one’s ability to use English to communicate with other nations worldwide. Moreover, each institution appears to have its own thresholds and restrictions.

In order to teach in English in Europe, several HEIs recommend lecturers to have a minimum C1 CEFR (*Common European Framework of Reference for Languages*) level. Martinez & Morgan (2019) argue that “this is possible in countries where a substantial percentage of the population is proficient, but would condemn EMI to failure in Brazil” (p.13). However, it does not seem to be a clear indication that C1 should be the minimum competence level required to participate in EMI lessons. Thus, establishing a minimum threshold is a fact that has to be discussed by the different stakeholder levels: institutions, departments, and professors. In Martinez & Morgan’s (2019) words, “if Brazilian and foreign students can understand class content of a lecture given with intermediate English proficiency, it could mean that an advanced level of English is not the minimum threshold required from lecturers to deliver EMI classes” (p.13). According to Gimenez et al. (2018), the language obstacles have to be considered. It is critical to overcome language barriers and enable many more academics to participate in international research and teaching networks, all of which are vital components of Brazil’s internationalization effort. Registro & Moss (2019) indicate a need to increase the academic community’s English proficiency levels to harness EMI implementation in Brazil since there is a need to have at least a minimum threshold for English language command. Moreover, the ability to communicate in English can considerably increase access to online information and education

in the form of Massive Open Online Courses (MOOCs) in the case of Brazil (Finardi et al., 2013; Finardi & Tyler, 2015) since the knowledge of an L2 and the improvement of language proficiency, in English in particular, facilitates access to internet resources and idea interchange (Taquini & Finardi, 2021), "when we consider the proportion of contents available in English and the number of users of that language in Brazil, we notice that there is a linguistic gap to be overcome" (Taquini & Finardi, 2021, p.35).

Finardi et al. (2021) analyzed the representation of postgraduate students from the field of *Biological Sciences* in an academic writing course in English. In the study, 12 students from the postgraduate program in *Biological Sciences* responded to 12 open-ended questions and 21 assertions utilizing the *Likert scale* (e.g., strongly agree, strongly disagree). In this study, the four most cited reasons to use EMI in their classes were: 1) the fact that using English favors the knowledge and training in this language; 2) improving English skills; 3) developing English writing; and 4) practicing English and improving it.

English proficiency is also central in the views of students. For example, Finardi et al. (2021) concluded that the representations of English proficiency by the students and professors in EMI situations support the notion that these students link English class achievements with a reasonable degree of language proficiency rather than a belief that only a native-like English would be enough. Thus, these findings are in line with Martinez's (2019) in that, different from European countries, such as the Netherlands, Brazil may not need a C1 minimum threshold for students and professors to take part in EMI lessons, but a satisfactory English competency level (Finardi et al., 2021). For that reason, as Matinez (2019) points out, if Brazilian and international students can grasp the content of a class delivered in intermediate English, it may indicate that a higher level of English is not critical to offering EMI practices. In addition, some of the

interviewed policymakers in Registro & Moss' (2019) stated that it is necessary to understand lecturers' backgrounds to establish effective language policies – having a clear image of their English proficiency levels can be valuable.

Although various tools and methods are necessary to help implement EMI in Brazilian universities, the emphasis cannot be solely on the language aspect because it is not just a question of language ability or teaching methods. For Registro & Moss (2019), "offering elective subjects in English, partnerships with universities abroad to increase academic mobility and programs stimulating international research collaboration are some policies that can take internationalization, in its broader sense, further" (p.56).

Registro & Moss (2019) also argue that teacher education is fundamental to the offering of EMI. In this respect, Pusey (2020) reported that the topic of pre- and in-service teacher education for EMI has received relatively little to no attention, also stating that this situation is even more present within Brazilian higher education. Furthermore, other authors have asserted that there is a lack of appropriate training for teaching courses through the medium of English in Brazil (Ball and Lindsay, 2013; Martinez, 2016). This is a visible point in the EMI arena since teacher education programs are few in this country, creating a challenge for the growth of EMI. Also, Pusey (2020) reports on a teachers' professional development course in EMI to professors from different areas in 2019. The fundamental aspect of this course was "to develop teachers' knowledge of the language, communication, and pedagogy for EMI, as well as to raise awareness of historical and contemporary issues (i.e., challenges, policies, relative advantages, and disadvantages)" (p.2). The analyzed results from this course revealed it is a difficult task to know what components of pedagogy, communication, or language use change (or improve) as a result of participating in an EMI teacher training course because it is also challenging to

understand which activities, tasks, and assessments are most beneficial to the professional growth of EMI instructors (Pusey, 2020). Nevertheless, according to the limited number of EMI teacher education researches, teacher preparation may help improve both pre-service and in-service teaching effectiveness. What is known for a fact is that many instructors regard such training opportunities as a desirable and necessary component of EMI engagement (Ball & Lindsay, 2013; Goodman, 2014; Pusey, 2020). According to Pusey (2020), "the real challenge, then, is to increase the number of EMI teacher education programs and to start collecting data on their impact" (p.9) other than concentrating only on English proficiency and purely linguistic matters.

In line with these ideas, it seems that factors around teachers' professional development to implement EMI in Brazilian settings go beyond the concept that all the scholars need is to know English. Other types of preparation and training are required and deemed just as relevant as the language itself. These include knowledge about class management, the challenges that can be found on the way while implementing EMI, the policies around the practice, and how the curriculum works when following this approach. Considering these aspects, the case in Brazil may still be incipient due to the scarcity of EMI teacher education opportunities and a narrow body of research on the programs' results (Kirkpatrick, 2014; Martinez, 2016; Pusey, 2020).

Gimenez & Marson (2022) support that "one of the main initiatives has been to provide the non-language teachers some form of 'training,' in order to help them cope with the demands of adjusting their teaching to this new situation" (p.156). Language teachers have frequently been called upon to provide this type of training in this context. Many of these professionals have been involved in other internationalization strategies, such as equipping teachers and students to speak an additional language, not to mention many who have become involved in

activities developed by university international relations offices. Many English language teaching specialists are responsible for preparing non-language lecturers due to the growing engagement of language experts in internationalization operations and the belief that some linguistic development will occur (Curle et al., 2020).

Gimenez & Marson (2022) ask, “what are the characteristics of EMI teacher education courses announced by universities in Brazil, concerning facilitators, target audience, duration, and mode of delivery?” (p.169). It seems that some courses are aided by foreign experts, varying in terms of duration, also showing that they are primarily delivered in person. The authors reviewed published reports of EMI teacher education courses, searching for information in terms of participants, objectives, syllabi, and methodology. Most participants were postgraduate professors who were about to begin teaching in English. The bulk of the syllabi appeared to take an instrumental approach to language and pedagogy. The methodology of the courses included a sample lesson that blended the introduction of some language learning ideas with hands-on practice. The most explored aspects of the courses were related to exploring language learning in EMI lessons. Most of the authors involved in researching EMI in Brazil also come from the TESOL (*Teaching English to Speakers of Other Languages*) field and, as Gimenez & Marson (2022) argue, “[it] suggests a focus on communication and language, as well as student-centered teaching techniques common in language teaching” (p.167). For the authors, “in terms of methodology, in most cases, there was the intention of involving the lecturers as much as possible, making the course interactive, with a final hands-on product to promote more EMI classes” (p.168). In this way, interactive communication is one of the main EMI foci of development. It provides ground for students and professors to state their ideas while creating a

final product encouraging the promotion of this practice to other scholars in their academic environment.

Considering implementation policies, Registro & Moss (2019) point out that professors feel that EMI should be approached from an institutional stance, with a strategic plan which includes language policies and steps to encourage instructors to participate in the projects. Most lecturers who participated in the study – 12 out of 13 – expressed enthusiasm for promoting their courses in English and acknowledged that the methods must differ from that used in Portuguese medium classes because they are far more demanding. As for the participating students, out of 27 respondents, 22 stated that professors should decide when to conduct EMI lessons based on their preparedness and familiarity with the concept. Besides, there was unanimous agreement that lecturers should receive assistance and incentives to implement EMI in their classrooms. These incentives could be in the form of "opportunities for mobility, the offer of bonuses and adequate resources, career development recognition and a fair workload" (p.57). To support students, the establishment of more successful EMI policies in universities would benefit significantly from the provision of language support, chances for mobility, and the growth of the range of disciplines provided in EMI and training in Academic English. Ultimately, the study demonstrates that implementing EMI can be challenging, but it comes with a slew of benefits and advantages. Thus, institutions should adopt EMI as an organic policy in Brazilian HE institutions, providing the structure and incentives for instructors to do so.

In this regard, Gimenez et al. (2019) show how matters of EMI implementation are handled in two institutions of Paraná state – the State University of Londrina (UEL) and the State University of Maringá (UEM). One of the main results is that although both institutions have EMI policies in place, the activities are primarily pushed by willing scholars and students rather

than the universities, in accordance with Coleman et al. (2018) and Gimenez et al. (2018). Also, people have a positive attitude toward EMI because English is deemed the language of science. However, the research team emphasizes a need to critically view the EMI phenomenon (Gimenez et al., 2019). The authors discuss EMI in terms of English as a Lingua Franca (ELF) studies, which concerns language ideologies and the normativity derived from uncritical acceptance of native speakers' norms.

While there are several challenges in common when considering EMI (Coleman et al., 2018), there is no prototypical EMI environment. On that count, all of these points mentioned above for a program and a curriculum in English to be approachable in Brazilian HE settings are decisive to raising awareness, as the real challenge in Brazil, according to Pusey (2020), "is to increase the number of EMI teacher education programs and to start collecting data on their impact" (p.9). In this line, Gimenez & Marson (2022) mention that some institutions in Brazil document and report more of their experience with EMI than others. Some of these HE organizations have publications concerning their practices, while others have no documentation on English-taught programs. Pedagogical concerns are another point highlighted by these authors. In the matter of syllabus, there is a wide range of concerns, some related to language and others to pedagogy. It could result from the practical consequences of a language policy that requires new teaching competencies, such as lecturers having to reconstruct their pedagogical subject knowledge beyond their fields of specialization. The majority of these professors have received their education as specialists in their disciplines, not in pedagogy. As EMI practitioners, they are confronted with new linguistic issues, which necessitate adopting new instructional techniques (Gimenez & Marson, 2022). In addition, Pusey (2020) argues that different views of EMI can be seen even within the same institution, considering local restrictions, requirements,

and ideals. For this author, “having a critical understanding of what EMI entails will help equip teachers with knowledge and strategies to make informed decisions about their teaching, which may ultimately lead to more equitable and enjoyable teaching and learning experiences for all” (p.8).

Concerning EMI problems in Brazil, Martinez (2016) mentions the little networking among the people who teach EMI (e.g., departments, faculty). For this author, “the people in University X seem to have little or no idea that people in University Y are also teaching classes through English, and it seems communication between them might be mutually beneficial” (p.19). In addition, in the case of Brazil, another problem is the non-acceptance of English medium classes by some departments. In this context, one of the central claims by professors is that offering EMI is a way to exclude students who did not have good English instruction throughout their middle and high school years. However, as Baumvol and Sarmento (2019) claim, “offering classes to improve general English literacy skills is essential to broaden the scope of EMI in a non-English dominant context like Brazil” (p.98) but that it is important “to ensure that EMI does not reinforce exclusion and inequality due to lack of language proficiency” (p.98).

One more objection found in the Brazilian higher education scenario comes from the conception that English can erase the importance of the native language, in this case, the Portuguese language. For Baumvol & Sarmento (2019), it is the role of applied linguists to counteract these inequality forces that accentuate the English language's importance to the detriment of others. Regardless, “this cannot be done at the expense of working-class students, who have the right to learn additional languages as much as those who come from wealthy families" (p.98). The authors emphasize that middle-class families make sure their children have

good English language proficiency and may not need public investment for that. On the contrary, low-income families do not have the means to pay for private language courses, a common practice in Brazil. Thus, these students from less privileged contexts are the ones who could most benefit from structured language policies which could allow them to participate in the international academic scenario. In this regard, it is necessary to encourage more possibilities for students and professors to engage in a community of practice that knows how to express themselves in English while sustaining practices in Portuguese and other minority languages. Guimarães & Finardi (2018) argue that the interculturality and the intercomprehension method between L1 and L2 (i.e., Portuguese and English) can mitigate the negative impacts of globalization, such as the use of English as the only language in academic settings.

In the long run, EMI practices are still largely incipient in Brazil. Although some institutions are eager to offer training programs, these are still exceptions. Furthermore, there is a scarcity of literature presenting fruitful data and reports on how English medium classes are carried on by those who have already embraced the endeavor. On top of that, more awareness of language policies is still broadly needed for internationalization affairs in the Brazilian academic community. Along these lines, Martinez et al. (2014) mention that language policies and internationalization are inherently associated when promoting academic and research opportunities for HE staff and students. Some scholars are afraid that the Portuguese language will lose its significance by opening ways for English medium practices. However, the opposite may occur. It can be speculated that by offering more courses in English, more international students will come to Brazil and learn some Portuguese, and Brazilian scholars will be able to share their research with a much broader public and then attract more attention to the country.

2.4 EMI: opportunities, challenges, and tensions

While it can be said that EMI provides a range of benefits, such as cognitive advantages, resource availability, enhanced exposure to English and opportunities to learn it, increased employability opportunities, as well as the possibility for scholars to demonstrate their skills in English by publishing in international journals, these perceived benefits are not a consensus among researchers (Coleman, 2006; Peng & Xie, 2021; Phuong & Nguyen, 2019; Tamtam et al., 2012; Zare-ee & Hejazi, 2017). This section will, thus, explore some of the benefits, challenges, and tensions found in the literature.

One of EMI's main alleged advantages is that it boosts intercultural knowledge across countries where English is not the L1 (Dearden, 2014; Gimenez et al., 2018; Hu, 2008; Macaro, 2015; Altbach & Knight, 2007). In addition, it may aid students in comprehending their own culture in comparison to other civilizations, helping learners behave better in cross-cultural situations in their academic environments, promoting cultural ties, and preventing blind cultural judgments and cultural misconceptions. It may also improve international communication, cross-cultural understanding, and worldwide mobility. When it comes to non-language disciplines and subjects, EMI has a set of positive results since it facilitates participation in international exchange programs in higher education (Coleman, 2006; Jappinen, 2005; Marsh & Laitinen, 2005; Tamtam et al., 2012).

EMI also has an appealing attribute since the internationalization of HE institutions is seen as being of great importance for local students. Along these lines, it is also a method to promote the institution's prestige by employing international faculty members and inviting students worldwide. Thus, inbound mobility (i.e., receiving scholars from other countries) provides collaboration and mutual trust between the parts involved (Guimarães & Kremer, 2020). One of the main possibilities of these partnerships is the prospect of communicating and

exchanging with the international and academic community. Moreover, English can be implemented as a tie between local scholars and inbound academics by attending to worldwide students. In addition, by receiving international professors and students, the institutions have a higher chance of obtaining more financing for the development of scientific research (Kurtan, 2004).

The implementation of EMI is projected to improve the quality of higher education and, consequently, HE institutions' competitiveness. At its most basic level, EMI is thought to accomplish two aims in one shot: improving both topic content and language learning. EMI is considered to foster incidental language learning (Hulstijn, 2013) since the professors and students have contact with the English language applied to their specific fields of knowledge. In addition, students may have more job opportunities after graduation if they have good English proficiency in general and in specific areas. Phuong & Nguyen (2019) point out that EMI can provide four benefits: advantages in terms of cognition, resource availability, more exposure/opportunity to learn English, and increased employability prospects. In their research, students' interest in the content rose even if there was no substantial change in their ability to comprehend the subject compared to students who solely received instruction in their native language (Mirizon et al., 2019; Schützenhöfer and Mathelitsch, 2001; Seikkula-Leino, 2007;).

For Zare-ee & Hejazi (2017), "EMI facilitates access to and use of the latest software and teaching materials" (p.478). As new technologies develop, it is easier to learn about them, enhancing student-teacher bonds since English is considered the language of computers. In addition, Zare-ee & Hejazi (2017) believe it is possible to bring awareness of cultural concepts, events, and ideas that are communicated more easily through English as it is an international language.

Nevertheless, many authors have challenged claims that the practice of EMI would only bring benefits to students, professors, and HEIs. Zare-ee & Hejazi (2017), analyzing the case of Iran, mention that English proficiency may be a problem increasing inequalities. In their findings, professors suggest that solving English proficiency issues takes a lot of effort and money since "English is neglected at the early stages of education in Iran" (p.478). In the same line, Macaro et al. (2018) highlight that the teaching of English tends to be overlooked in the early phases of education, especially in less privileged communities and countries. In a study in Bangladesh, it was possible to witness that students from public schools were academically and socially disadvantaged, giving them little or no contact with English before their EMI courses. Their lack of language competency in EMI disciplines harmed their socialization on campus, self-image, identity, and learning prospects.

Wu (2006) also asserts that low English proficiency makes it difficult for learners to understand course content, preventing them from expressing themselves fluently in class and discouraging debate and exchange between instructors and students. Similarly, considering the varying degrees of language proficiency among students and teachers and the potential for comprehension, one would wonder how much of the content is genuinely being acquired (Pusey, 2020; Shohamy, 2013).

Tang (2020) conducted an investigation at Thailand International College, asking professors about the main challenges faced when implementing EMI in their lessons. Concerning language difficulties, the author remarked that all participants agreed that students struggle to write reports in English. Tang (2020) refers to one specific professor who mentioned that students could not write good reports in English because they could not understand the fundamental concepts of their disciplines due to language barriers. Therefore, the majority of the

respondents seemed to be having complications with their learners' productive abilities in academic writing. Also, according to Tang (2020), the instructors code-switched to assist students in understanding parts of the class and in overcoming cultural barriers. This is compatible with Galloway (2017), who found that, in some disciplines, when students learn in their L1, they comprehend more content than when they learn in English. Memory et al. (2018) reinforce the idea that code-switching can assist students with weaker performance in understanding lessons more easily. In addition, professors' stress levels can be reduced by the use of code-switching because they do not have to think about how to say anything in English when they move to their L1 (Memory et al., 2018; Tang, 2020).

Shohamy (2013) and Goodman (2014) demonstrate that multilingualism and linguistic diversity may be jeopardized by internationalization policies that push colleges to embark on English-medium education only. It is somewhat unsurprising, given English's hegemony as the international language of communication. If this is the case, the goals of encouraging language variety may not be wholly accomplished, or various languages may receive disproportionate representation. In Pusey's (2020) point of view, "EMI programs — and the English language more generally — bring with them a set of values, status, and prestige that at once affords certain privileges and benefits, while simultaneously devaluing and marginalizing other forms of cultural production" (p.7). Correspondingly, in Italy, for example, there has been a concern about developing an English-speaking elite at the expense of native languages and culture (Molino & Campagna, 2014). Dafouz et al. (2014) debate that Basque and Catalan languages were subjugated in Spain as well, for instance. With EMI's quick rise, there has been much debate about whether it threatens these languages.

According to Doiz et al. (2012), multilingualism at HEIs cannot be neglected to guarantee EMI practices. A study carried out by Shimauchi (2017) in emerging International Liberal Arts (ILA) programs in Japan showed that compared to courses offered in Japanese-medium instruction, ILA programs offered in EMI underplayed multicultural education. As asserted by Shimauchi (2018), “ILA programs taught in Japanese typically include multilingualism and multi-language learning in their curriculum in forms such as “English plus one” learning” (p.84). EMI, on the contrary, demands students to commit a significant amount of time to learn English to be capable of dealing with course content written and presented in this language" (Shimauchi, 2017; 2018). Thus, as Shohamy (2007) argues, despite English being the global language, the essence of globalization is multilingualism. If EMI truly obstructs multilingual education, ideological issues and educational capabilities should be scrutinized at every level (Coleman, 2006; Shimauchi, 2018; Shohamy, 2007; Yoshida, 2014).

Kırkgöz (2005), in his study with 203 students at Çukorova University in Turkey, found “detrimental effects of learning subjects through another language such as a feeling of being distanced from their native language and culture” (p. 101). In Oktaviani’s (2019) perspective, these sorts of harmful outcomes noted by Kırkgöz (2005) arose due to the teachers’ challenges in efficiently using English in their classes. According to Pusey (2020), the fundamental lesson is that language skills, and teaching practice is not enough in EMI teacher preparation programs. Professors must also consider the greater global and historical context in which these movements occur. For this author, “to do so, EMI teacher education programs need to incorporate a critical, reflexive approach to practice and pose critical questions” (Pusey, 2020, p.8). He describes these critical questions as 1) “Who are we (as professors, as a university) in the bigger picture of education and internationalization?”, 2) “What is at stake by offering classes in English (and,

e.g., not in the local language)?" and 3) "To what extent are the purported benefits of internationalization and EMI actually borne out for students, faculty, and the greater society?" (p.8).

An additional concern is the time and energy spent conducting EMI classes (Pusey, 2020). For this author, if the lecturers are impeded from engaging in customary classroom teaching practices, such as utilizing humor, and if they are denied any apparent HE assistance or monetary recompense, as is often the case, these expenses must be highlighted in EMI teacher education programs, as well as the comparative advantages of enforcing this methodology (Kling, 2019; Pusey, 2020).

Moreover, Shimauchi (2018) points out another issue when the topic is EMI challenges: the English language as a tool of "Academic Imperialism." As argued by the author, the English language's supremacy in worldwide academia is evident. Nowadays, in virtually all educational systems, English is taught as the first additional language, and it is now considered a part of primary education rather than a foreign language curriculum (Beacco & Byram, 2003; Graddol, 2006). Thus, there is a standardization of language teaching and use, which is usually called "English-ization," a term that is entangled with the academic hegemony and dominance of countries like the United States, the United Kingdom, Canada, Australia, New Zealand, and Ireland, often referred to as the "Inner Circle" (Kachru, 1985; McArthur et al., 2005; Philipson, 2009).

According to Shimauchi (2018), "English is not only an international language; it is the academic "lingua franca" by which knowledge and ideas are transmitted through prestigious academic journals, majority of which are written in English" (p.83). In this way, non-English speaking countries have to contend with the English-speaking criterion, which imposes an

international benchmarking of educational quality and academic culture initiated in the West (Shimauchi, 2018). This “English Imperialism” is frequently seen in colonial and post-colonial situations, particularly in Africa and Asia, where native languages are taught in the first grades before switching to more esteemed languages at the university level, e.g., mainly English (Phillipson, 2009). According to these authors, EMI programs help maintain the dominance of English-speaking academic literature, education, and culture. EMI is more than a linguistic shift; this approach has been defined as a geopolitical, economic, and ideological phenomenon with far-reaching implications for academic environments (Madhavan Brochier, 2016; Phillipson, 2009; Schimauchi, 2018).

In the case of countries such as Brazil, where social inequalities are heightened, inequalities in English language proficiency levels between students from high and low- income families are seen as a vital factor to be analyzed when it comes to EMI in HE institutions. Brazil has some of the world’s most significant gaps between rich and poor, ranking in the top 20 most unequal countries concerning income distribution (Windle & Nogueira, 2014), which may be profoundly detrimental to internationalization practices. Thus, students who did not have access to English language training during elementary and high school can be marginalized regarding methods such as EMI unless proper inclusive practices come into play.

Windle & Nogueira (2014) point out that in the Brazilian setting, practices of elites "have been marked by heavy investment in learning English and international travel to ‘first world’ destinations for educational purposes since the 1990s” (p.176). Research shows that access to the English language is part of upper-class students' reality, whereas "for working-class students, it is just a dream” (Windle & Nogueira, 2014, p.188). As stated by Wächter & Maiworm (2014), differences in access to the English language before HE can lead to worries about the disparity in

proficiency levels among students. This was, In Guimarães & Kremer's (2020) words, “the teaching staff has to be able to deal with this type of diversity (that is, different levels of proficiency) in the EMI classroom” (p.233).

Another challenge is raised due to the way EMI has been addressed and promoted in higher education (Jordão, 2018) since there is an idealism toward this practice. For instance, Figueiredo et al. (2021) and Martinez (2016) raise concerns about the celebratory context of internationalization and EMI discourses, which tends to ignore local differences. According to Martinez (2017), when centered primarily on the customs and conventions of the global North and on competitiveness, internationalization, and EMI policies are expressions of colonialism and neoliberalism in contemporary higher education. Martinez’s (2017) findings demonstrate contradictions between neoliberal reasonings frequently used in internationalization processes and anti-hegemonic discourses that reveal local consciousness and a drive for legitimizing local customs. In the same line, De Figueiredo et al. (2021) pose a demand for epistemic transformation in unequal global South-North relations. Furthermore, conflicts between the features of international and local practices in EMI lessons pose cultural issues, which may include the manner the teacher and the student interact (learning and teaching styles), as well as how students interact with one another (Baumvol & Sarmento, 2016; Bradford, 2016; Guimarães & Kremer, 2020; Kim et al., 2014).

Despite problems and challenges, as remarked by Coleman (2010), the main advantages of EMI relate to the improvement of international communication, supplying prospects for national students to study abroad, and facilitating institutions’ prominence while engaging international faculty partners and learners from across the globe. Additionally, using EMI and displaying a global outlook at HEIs may improve the chances of funding for research projects

(Kurtan, 2004). Also, there are more possibilities for professors and students to improve their English proficiency, providing more visibility when disseminating their studies in this language (Coleman, 2006; Tamtam et al., 2012). Likewise, when considering students in this context, there are benefits regarding language awareness, resource availability to explore and work on, providing an environment that entitles openness to English, and expanded employability possibilities (Phuong & Nguyen, 2019).

All in all, issues of social discrepancies and inequalities are to be highly considered in countries like Brazil. Unfortunately, this reality ends up not preparing all the students for English medium classes due to uneven access to the language during elementary and high school (Guimarães & Kremer, 2020). Thus, EMI's pros and cons should be continually assessed and counterbalanced at HEIs and departments to evaluate the possibilities of deploying it along with the actions needed to implement it.

The main reasons to implement EMI in HEIs regard a vast range of possibilities in the long run. First, as pointed out in the literature, "EMI can encourage a more balanced academic mobility since institutions from non-English dominant countries will be more prepared to receive students from different geolinguistic regions of the globe" (Baumvol & Sarmento, 2019, p.98). As noted by the authors, in the case of Brazilian post-secondary education, students and faculty must be able to communicate in English, nevertheless, never to the detriment of varied practices in the local language and multicultural enactment. Moreover, "a nation aiming to play a prominent role in the global scenario must have its scientific, academic and cultural results shared with a wider audience, and the English language would allow that" (Baumvol & Sarmento, 2019, p.99). Those who grasp this international language will be better equipped to

fight its dominance, helping to create multi and cross-cultural HE environments that respect the fundamentals of internationalization: multilingualism and multicultural estimation.

2.5 EMI: disciplinary differences

The present section focuses on disciplinary differences when it comes to the construction of knowledge and how it affects the use of English. Previous studies have shown that it is paramount to consider distinctions in language use when it comes to the construction of disciplinary knowledge; in this way, it is reasonable to expect that disciplinary contrasts will influence the use of EMI since demands and purposes may vary widely (Bernstein, 1999; Kuteeva & Airey, 2014, and Salö, 2010). This section aims at discussing how knowledge is constructed in different fields of knowledge and how the English language is affected not only by knowledge construction but also by other peculiarities of each field. Becher (1998) categorized fields of knowledge into four groups: ‘pure hard,’ ‘pure soft,’ ‘applied hard,’ and ‘applied soft,’ according to their epistemological traits. For instance, pure hard knowledge (physics or chemistry) has a “cumulative atomistic structure, concerned with universals, simplification, and a quantitative emphasis.” In contrast, pure soft knowledge (history or anthropology, for example) is “reiterative, holistic, concerned with particulars and having a qualitative bias” (Neumann & Becher, 2002, p.406). Furthermore, applied hard areas, such as engineering, tend to be more purposive and pragmatic, based on "factual understanding and concerned with the mastery of the physical environment and practical applications.” Finally, the applied soft category (e.g., education) “is also of functional, practical nature, informed primarily by soft pure disciplines; it lays emphasis on professional practice or personal growth” (Kuteeva & Airey, 2014, p. 537).

Bernstein (1999) also categorizes disciplinary knowledge structures in terms of epistemological issues and demonstrates how these contrasts present themselves in various forms of academic discourse, which he labels “vertical discourse.”

> Vertical discourse takes the form of a coherent, explicit, and systematically principled structure, hierarchically organized as in the sciences, or it takes the form of a series of specialized languages with specialized modes of interrogation and specialized criteria for the production and circulation of texts as in the social sciences and humanities. (Bernstein, 1999, p.159)

Considering the different ways in which knowledge is constructed, Kuteeva & Airey (2014) maintain that:

> In the natural sciences, for instance, new knowledge is built on the foundations of previous knowledge in a hierarchical manner, whereas in the humanities, knowledge is considered through new interpretations of phenomena, texts, and artifacts (in effect creating multiple ‘languages’ or ‘Ls’). (Kuteeva & Airey, 2014, p.546)

As far as disciplinary differences, language, and discourse are concerned, the harder sciences typically have an agreed-upon set of terms that correspond directly to the discipline's concepts in terms of language. They also tend to follow well-established research methodologies and processes, which are mirrored in their disciplinary discourses, both at the macro (the schematic and rhetorical structure of academic genres) and micro levels (lexicogrammatical features, formulaic language) (Kuteeva & Airey, 2014; Bernstein, 1999). The humanities discourse is marked by a more substantial authorial presence than the hard sciences. Because language is used to generate knowledge, it can be utilized more flexibly and imaginatively. To summarize, disciplinary practices and epistemologies shape language across a broad spectrum of

specializations, from science to the arts and humanities (Hyland, 2000; Kuteeva & Airey, 2014). As a result, given the importance of language in the information of disciplinary knowledge, it may be predicted that disciplinary distinctions will influence the use of English as a medium of instruction, with natural sciences using it the most and humanities the least (Kuteeva & Airey, 2014).

Considering the use of English, Bolton & Kuteeva (2012) presented findings of a large-scale survey carried out at Stockholm University, which included 668 employees and 4.524 students, focused on the use of English in the classroom and students' and professors' opinions towards EMI. Their findings show a complex pattern concerning the English language in HEIs, related to the field of knowledge, the level of education (undergraduate or graduate level), and the receptive versus productive English skills. The authors point out that English is the main language for both professors and students in the harder sciences. On the other hand, English is often used as a second or auxiliary language alongside Swedish for the humanities and social sciences.

Kuteeva & Airey (2014) conducted an inquiry also in Sweden, making use of open statements regarding professors' and students' perspectives on the engagement of English in educational and research settings, spanning from sciences to humanities to social sciences. In the responses, throughout the sciences field, a majority of participants stated that English dominates the subject, saying that it is "better to stick to the [English] language and prepare students for [international] reality" (Kuteeva & Airey, 2014, p.542). On the other hand, the humanities show concerns toward EMI, mentioning that language is not neutral (Kuteeva & Airey, 2014) since it would be necessary also to keep the native language as a medium of instruction; thus, in some humanities departments, no English medium courses are offered neither at undergraduate nor

postgraduate levels. However, the social sciences are in the middle, showing a variety of responses, ranging from arguments in line with the humanities to claims that defend the use of English in lessons and other academic tasks for the sake of internationalization and the job market. Disciplinary heterogeneity in English language engagement may not be random but rather the result of different disciplines' knowledge-making practices. Discipline epistemologies differ, resulting in quite distinct disciplinary discourses. In order to offer students with relevant language skills for academic studies, such disciplinary-specific literacies must also be regarded, addressing essential aspects of language use while allowing space for discipline-specific alterations (Bolton & Kuteeva, 2012; Gimenez, 2012; Kuteeva & Airey, 2014; Salö, 2010).

Concerning matters of production, Kuteeva & Airey (2013) and Salö (2010) research the use of English in Ph.D. dissertations. Currently, around 87% of all Swedish universities' dissertations are written in English. Not surprisingly, English language engagement in Swedish HE is not uniformly spread among disciplines. For example, whereas in the sciences, the proportion of dissertations written in English is 94%, this proportion falls to 65% in the social sciences, and in the humanities, it drops to 37%. The report by Salö (2010) thus exhibits that the use of English in dissertation writing differs widely by discipline.

Considering Brazil's situation, Baumvol, Sarmento, and Arêas da Luz Fontes (2021) found that disciplinary communities have different practices concerning preferred languages of publication. The authors examined how scholars use Portuguese or English in their publication practices in eight broad fields of knowledge, the same fields used by the main funding agencies. They point out that professors in the 'harder' sciences - e.g., *Biological Sciences, Engineering, Exact and Earth Sciences, Health Sciences* - use more English than those in the 'softer' sciences - e.g., *Human Sciences* and *Linguistics, Literature, and Arts*. These findings suggest that the

‘harder’ sciences tend to have a more exocentric, internationalized, and anglicized profile. In comparison, the ‘softer’ sciences' productions are more endocentric and locally-oriented, usually disseminating knowledge in Portuguese more frequently than in English (Baumvol, Sarmento, and Arêas da Luz Fontes, 2021; Lopez-Navarro et al., 2015).

Kuteeva & Airey (2014), in this context, show that in the field of Education, the diminished use of English can be attributed to the discipline’s vocational orientation, which explains a greater use of the local language (L1). For them, “vocational disciplinary literacy refers to communication of the discipline in the world of work and in professional settings” (p.539), such as in Education. Therefore, there is a preference for the local language instead of English because local workplace contact will be with other people who speak only the L1.

Math and philosophy, on the other hand, make substantial use of English, “the role of language in the construction of knowledge in these two disciplines is very different: mathematics has its own symbolic code, whilst philosophy relies exclusively on linguistic resources and argumentation” (Kuteeva & Airey, 2014, p.541). These two domains are essentially logic-based but have reasonably distinct epistemologies. These two “pure,” classical fields have a solid cosmopolitan focus, which may explain why they use English to communicate with the international academic community at a higher rate (Becher, 1989; Bernstein, 1999; Kuteeva & Airey, 2014). In addition, the demands and goals of specialized fields of knowledge and ‘niche subjects’ may mean that languages other than English may make more sense due to the meaningful theoretical ideas that scholars in these fields use (Baumvol, Sarmento, and Arêas da Luz Fontes, 2021; Amon, 2006). One example mentioned by Baumvol, Sarmento, and Arêas da Luz Fontes (2021) is that German and French philosophers have historically influenced Latin American law studies, particularly in Brazilian HE. Hence, “researchers in certain academic

disciplines might consider that accessing knowledge in its original language allows for a more in-depth understanding that contributes to their work" (Baumvol, Sarmento, and Arêas da Luz Fontes, 2021, p.21).

When implementing EMI practices, disciplinary differences must be considered (Baumvol, Sarmento, and Arêas da Luz Fontes, 2021; Bolton & Kuteeva, 2012; Kuteeva & Airey, 2014). Accordingly, distinct fields of knowledge have specific ways of handling language use. It is essential to provide ongoing customized support to the needs of various disciplinary communities. In the Brazilian scenario, Baumvol, Sarmento, and Arêas da Luz Fontes (2021) suggest that "the adoption of English in [Brazilian] higher education should be a language policy decision involving research priorities, idiosyncrasies of the respective disciplinary communities, target audiences involved, and financial resources to support researchers" (p.23).

Chapter 3: Methodology

The present research follows a quantitative methodology of data collection and analysis. The study's objectives are to analyze how EMI practices are spread through the broader CNPq's fields of knowledge, to what extent English is implemented in classroom practices, and how proficiency influences the implementation; here, language proficiency was divided into *reading* and *general proficiency*.

For this, three main research questions are raised:

1) to what extent do the different fields of knowledge use EMI in Brazilian HE?

2) what are the general self-rated English proficiency levels of HE professors in Brazil?

3) how do these self-rated proficiency levels relate to EMI practices at the undergraduate and graduate levels?

Data were collected through an electronic *questionnaire (Google forms)* administered in 2017 as part of a larger project called *The use of the English Language in Brazilian Higher Education,* which investigated how languages are used by professors who hold a Ph.D. associated with HEIs in Brazil. Part of the data has already been analyzed in the Ph.D. dissertation titled *Language Practices for Knowledge Production and Dissemination: the case of Brazil* (Baumvol, 2018) and the final undergraduate monography *EMI in Brazilian Higher Education: a study of professors' perceptions* (Marengo, 2019), as well as in papers (Baumvol and Sarmento, 2016; Baumvol and Sarmento, 2019).

Participants were recruited from the Lattes Platform[6], which comprises CVs from all professors, researchers, and graduate students in Brazil. The "Search Curriculum Lattes" tool was used on the CNPq website with some filters to select which participants would receive the questionnaire.

Figure 6. Search engine of Lattes Platform (Baumvol, 2018). Retrieved April 4, 2022, from http://buscatextual.cnpq.br/buscatextual/busca.do?metodo=apresentar

First, the filters "professional activity (institution)" and "Brazil" were selected in order to include only CVs of scholars who worked in Brazilian HEIs" (p.85), as shown in Figure 7:

[6] The Lattes Platform is a virtual platform created and maintained by the National Council for Scientific and Technological Development which integrates databases of curricula of Brazilian students and researchers, research groups and institutions into a single information system (Stip Compass, 2021).

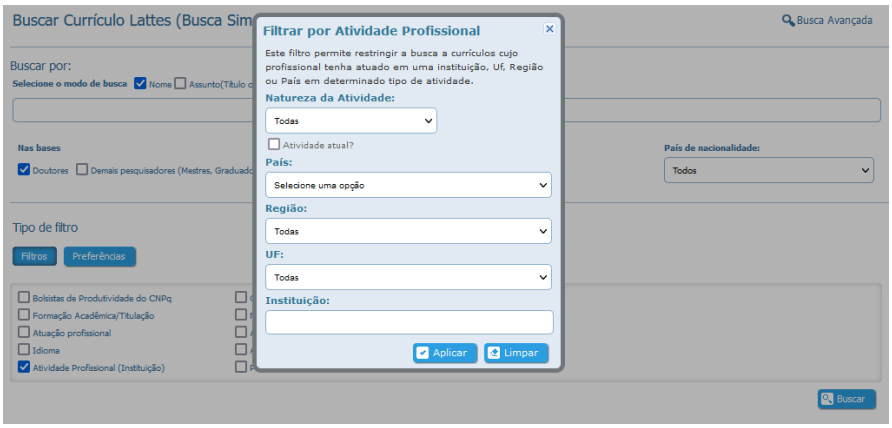

Figure 7. Page showing the filter "professional activity (institution)" and "Brazil" selected as the country of the institution on Lattes Platform (Baumvol, 2018). Retrieved April 4, 2022, from http://buscatextual.cnpq.br/buscatextual/busca.do?metodo=apresentar

The Lattes Platform divides fields of knowledge into ten major categories: *Agricultural Sciences*, *Applied Social Sciences*, *Biological Sciences*, *Engineering*, *Exact, and Earth Sciences*, *Health Sciences*, *Human Sciences*, *Linguistics*, *Literature, and Arts*, *Other*, and *Technologies*. However, because there were no curriculums documented in the knowledge fields "Other" and "Technologies" (Baumvol, 2018) when the filter "field of knowledge" was applied, just the other eight areas were included: *Agricultural Sciences*, *Applied Social Sciences*, *Biological Sciences*, *Engineering*, *Exact and Earth Sciences*, *Health Sciences*, *Human Sciences*, *Linguistics*, *Literature, and Arts*.

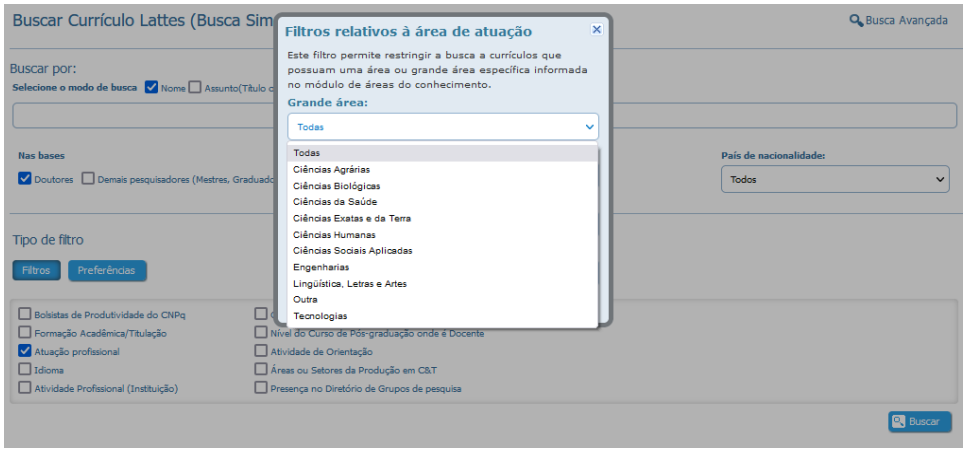

Figure 8. Page showing the filter "field of knowledge" on Lattes Platform and the 10 fields of knowledge provided (Baumvol, 2018). Retrieved April 4, 2022, from http://buscatextual.cnpq.br/buscatextual/busca.do?metodo=apresentar

These eight fields of knowledge were classified as integrating either the 'harder' or the 'softer' sciences (Baumvol, 2018). The 'harder' sciences incorporated the fields of *Agricultural Sciences*, *Biological Sciences*, *Engineering*, *Exact and Earth Sciences*, and *Health Sciences*. In comparison, the 'softer' sciences included the three remaining fields: *Applied Social Sciences*, *Human Sciences*, and *Linguistics, Literature, and Arts*.

According to Rudolph et al. (2013), online questionnaires tend to have a low response rate, fluctuating between 10 and 35%. Thus, 29,747 questionnaires were sent by email to professors registered on the Lattes platform. Professors were recruited crossing different filters on the Lattes platform: the field of knowledge and the HEI's state.

After selecting the participants, an individual e-mail was sent using the "Contact" tool, as shown in Figure 9.

Figure 9. First page of a Lattes CV registered on Lattes Platform (Baumvol, 2018) Retrieved May 19, 2017, from http://buscatextual.cnpq.br/buscatextual/busca.do?metodo=apresentar

Then, the message below was sent to the professors. The message contained a concise note informing the research topic and the link to the online questionnaire.

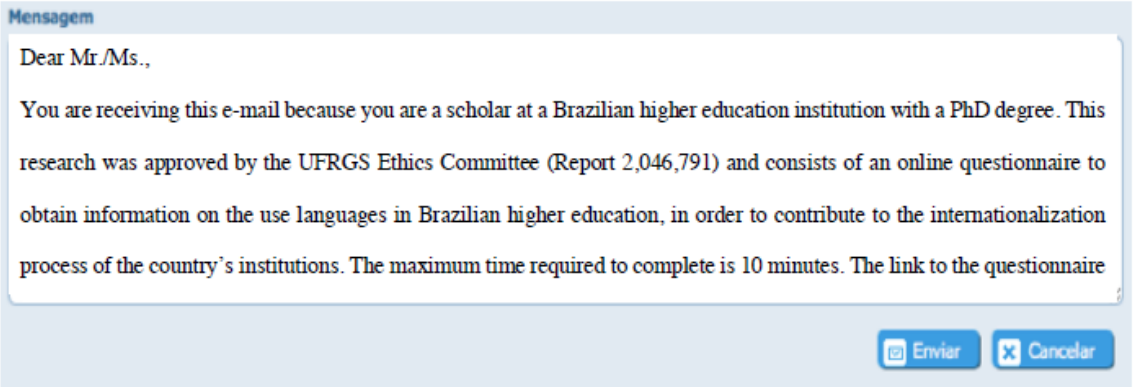

Figure 10. Message sent to scholars with the link to the online questionnaire (Baumvol, 2018). Retrieved May 19, 2017 from http://buscatextual.cnpq.br/buscatextual/busca.do?metodo=apresentar

At first, 5,516 answers were collected by October 2017; however, 397 participants either did not complete the questionnaire or reported they did not hold a Ph.D. degree and were excluded from the analyses. Thus, A total of 5,119 valid responses were considered, representing a 17.2% return rate. The questionnaire presented 64 questions, ranging from participants' profiles and fields of knowledge to information related to their use of English in publications, lectures, and research projects. In this present study, thirteen questions were analyzed.

3.2 Questions analyzed

In this section, the questions included in this study will be presented. In addition, an explanation of how the answers were organized and trimmed for the analysis will also be shown.

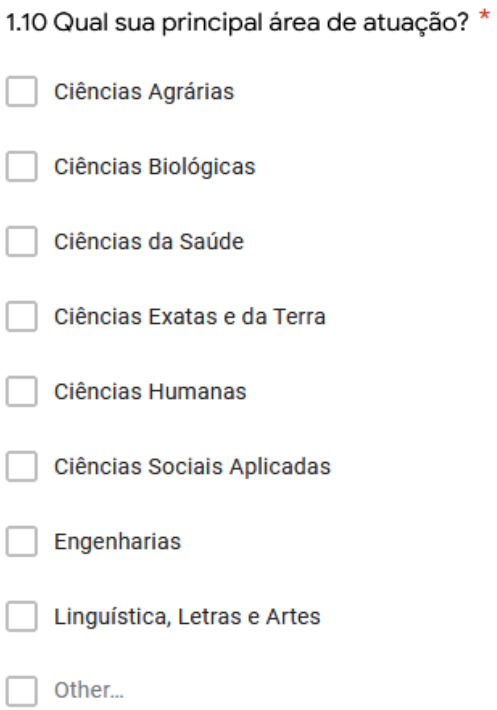

Figure 11. Question on professors' main field of knowledge at their HEIs.

This question asked respondents to select their field(s) of knowledge. This is a check-box question, meaning participants could choose more than one answer. Also, they could add an extra field of knowledge. From the total, 403 respondents (7.9% out of the total 5,119) selected

more than one field or added another field. As new categories with small sample sizes would have to be created to include these scholars in the analysis, only scholars who chose only one field were considered, which led to the final number of 4,716 questionnaires analyzed.

In order to organize the data on how the different fields of knowledge implement EMI in their practices, an Excel spreadsheet was created containing each of the eight fields of knowledge, dividing them into different tabs to account for the number of *yes* and *no* answers to the question '*have you ever taught classes in English at your HE institution?*'.

Then, the following two questions asked the respondents to self-rate their English knowledge concerning reading and general proficiency.

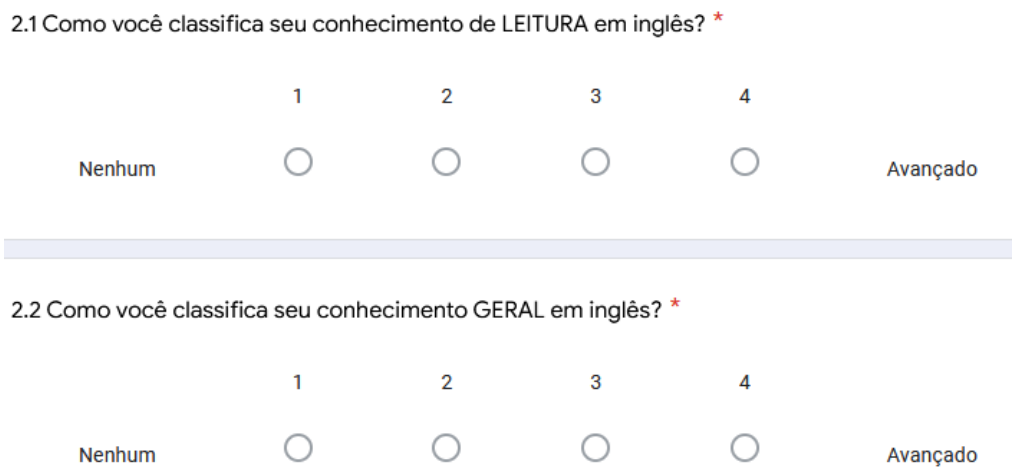

Figure 12. Questions on how the professors rate their reading and general knowledge in English.

These questions had a scale from 1 to 4 as options, ranging from 1 = no knowledge of English to 4 = advanced. This and all questions that follow are the multiple-choice types, which, in Google Forms, means respondents can only select one of the options. Subsequently, the same Excel spreadsheet utilized to separate the fields of knowledge was used, by adding a column, to add the correspondent proficiency levels of each respondent.

Regarding self-rated language proficiency, adult users/learners of a second language seem to be capable of rating their own level of proficiency with a reasonable degree of accuracy when descriptors of different functional levels of proficiency are provided (Wilson and Lindsey, 1999). Thus, the assumption here is that the self-rated proficiency of these professors can be taken at face value.

The following questions are related to the teaching level of respondents, that is, whether they teach at the undergraduate and/or graduate levels.

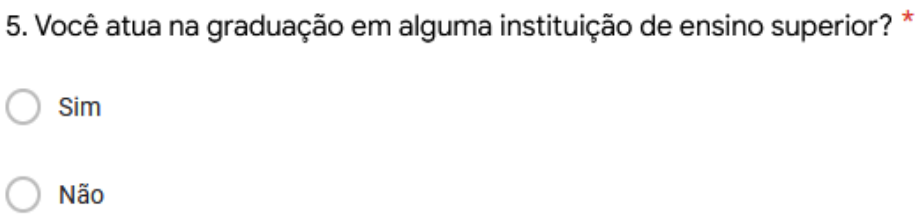

Figure 13. Question on whether the professor works at the undergraduate level.

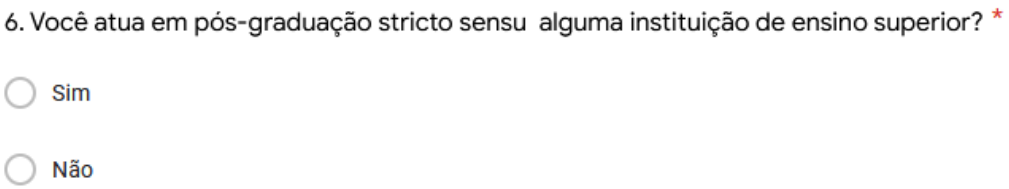

Figure 14. Question on whether the professor works at the graduate level.

In these questions, the professors could only select *yes* or *no*. If they answered no, they would be directly led to the next section; if they answered yes, they would be conducted to four other questions concerning undergraduate/graduate practices taking into account the languages used by them and their students. Thus, the number of respondents will vary according to the number of professors who confirmed working at each level in both cases.

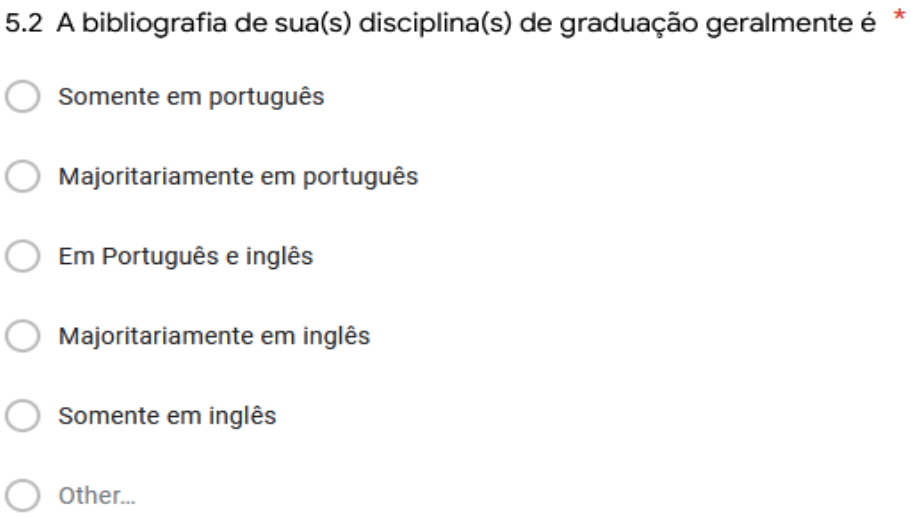

Figure 15. Question on the language used for the bibliography at the undergraduate level.

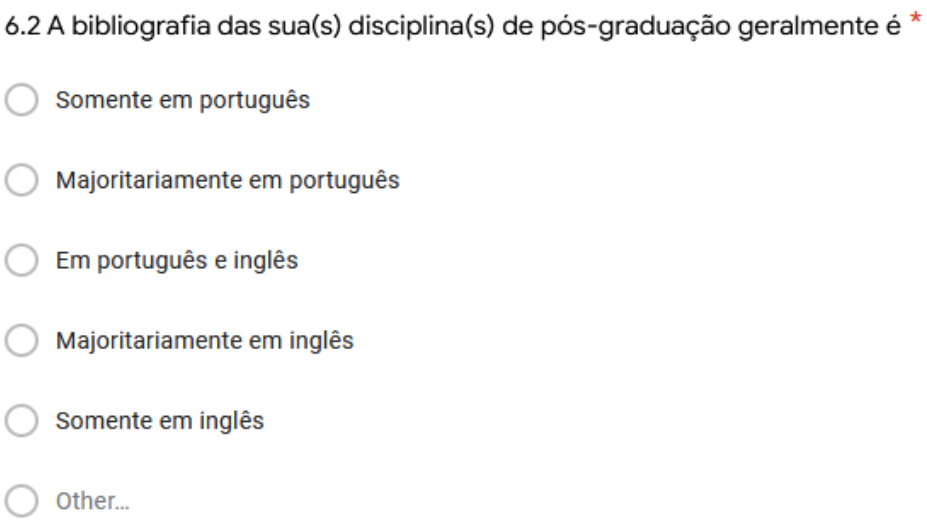

Figure 16. Question on the language used for the bibliography at the graduate level.

After the professor selected *yes*, the first question dealt with the language used in the bibliography of the course. Here, they could choose among six options 1) *only in Portuguese*, 2) *preferably in Portuguese*, 3) *in Portuguese and English*, 4) *preferably in English*, and 5) *only in English*. Moreover, the option *Other*, with an open-ended format, was given to the respondents so that they could mention additional languages. However, as the number of *Other* responses was

minimum and the present analysis focuses on the use of English, these answers were disregarded for all the questions included in this study.

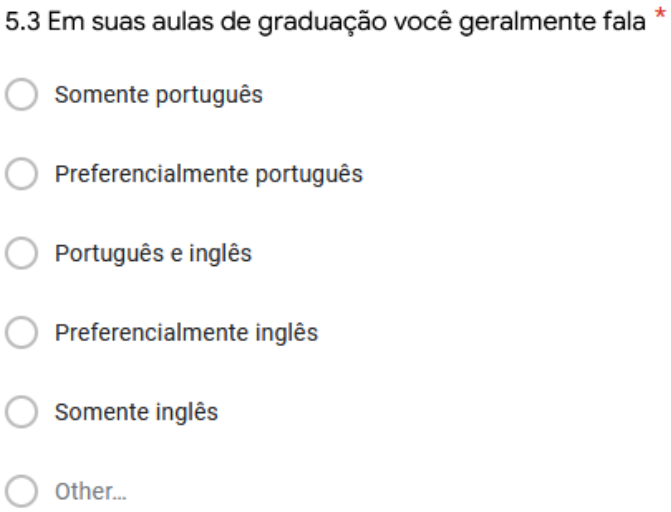

Figure 17. Question on the language used by professors in their undergraduate classes.

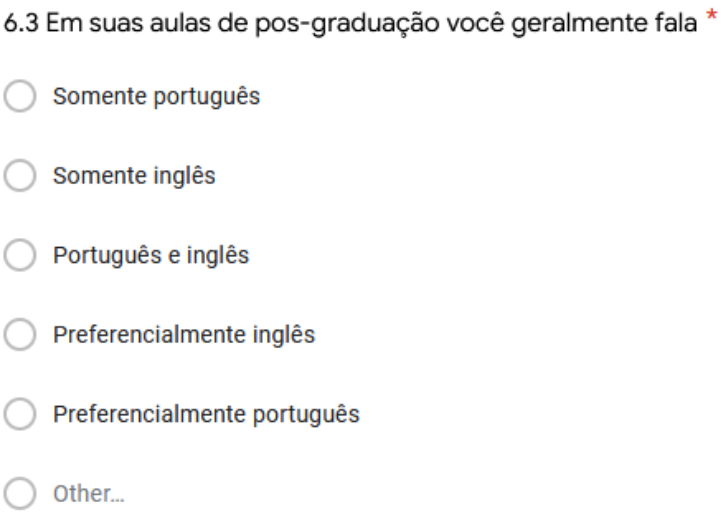

Figure 18. Question on the language used by professors in graduate classes.

Here, professors were asked about their speaking practices at the undergraduate/graduate levels; i.e., if they spoke only Portuguese, only English, a mix of Portuguese and English, Preferably in English, preferably in Portuguese, or Other.

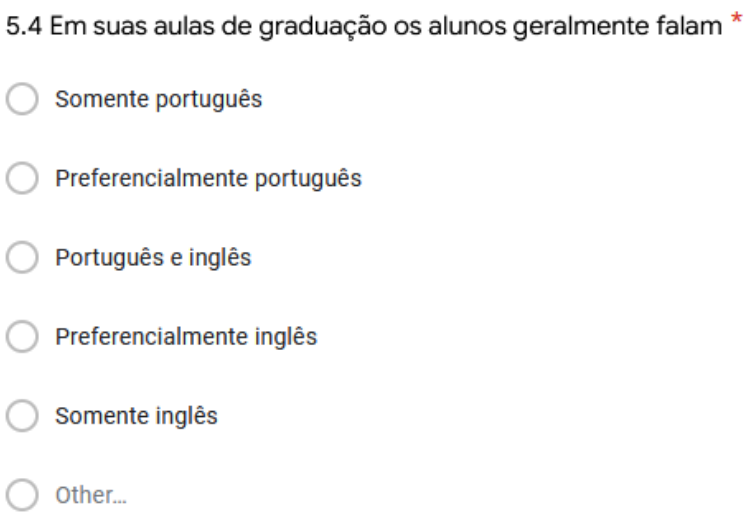

Figure 19. Question on the language used by students in their undergraduate classes.

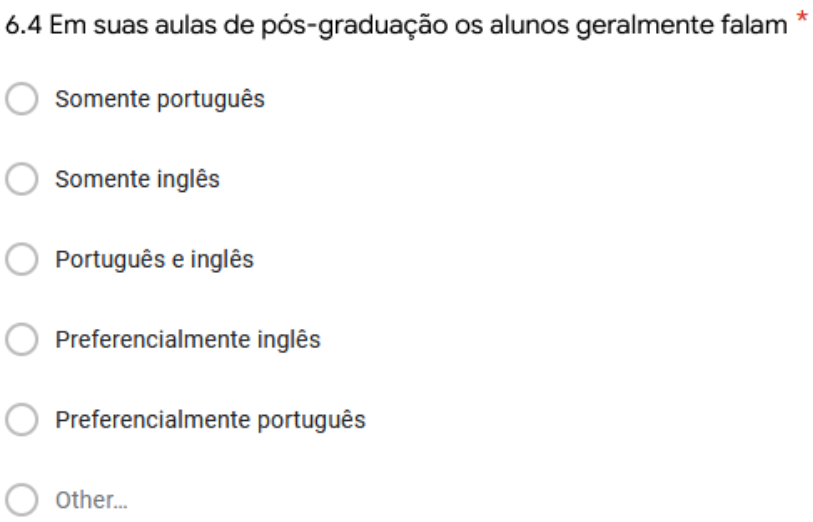

Figure 20. Question on the language used by students in their graduate classes.

These questions focused on professors' perceptions of students' language in their classes at the undergraduate/graduate level. Possible answers were the same as the previous question.

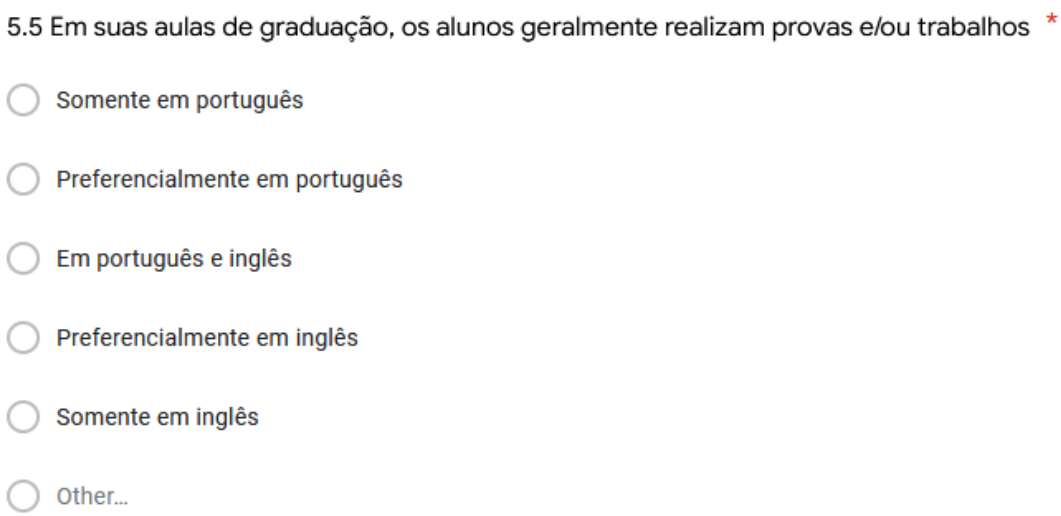

Figure 21. Question on the language used by undergraduate students for tests and assignments

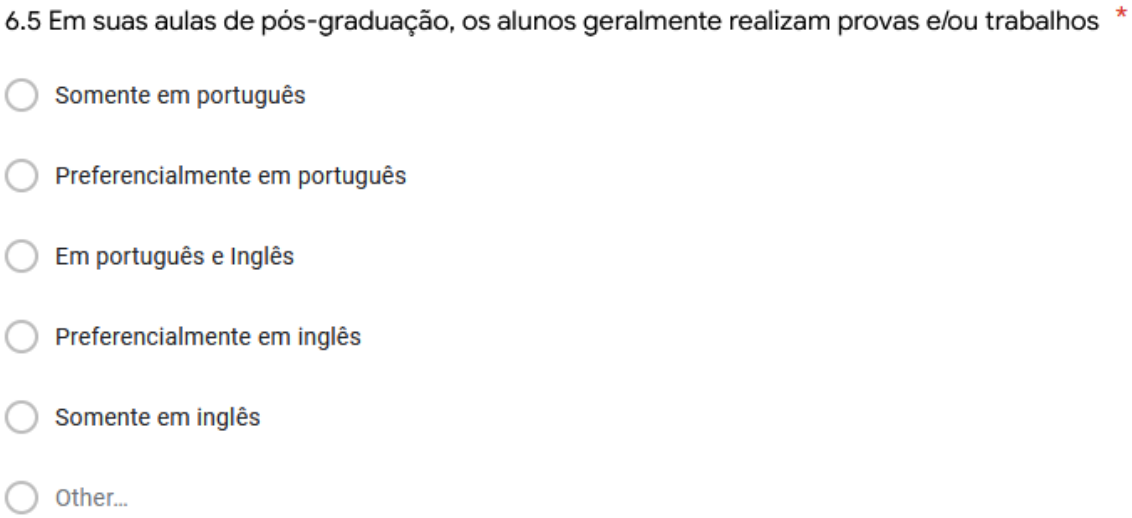

Figure 22. Question on the language used by graduate students for tests and assignments.

In the last question analyzed, professors were asked about the language(s) students usually use to write their tests and assignments. Again, the possible answers were the same as in the three previous questions.

After compiling the data from these 13 questions, a correlational statistical analysis was carried out with the help of the software SPSS (IBM Corp, 2021). A Correlation analysis

calculates the measure of the strength of the linear relationship between two variables and computes their association, i.e., it calculates the level of change in one variable due to the change in the other. With these analyses, it was possible to cross scholars' self-rated general knowledge of English and self-rated reading abilities in English to the extent these professors use English in their classes, readings, assignments, and exams through both HE levels, at both undergraduate and graduate levels.

Chapter 4: Results and discussion

This section will describe and analyze how the distinct fields of knowledge use English in their classroom practices in Brazilian HE. This first analysis contemplates respondents' answers to the question '*have you ever taught classes in English at your HE institution?*'.

Considering the data, 13,5% (628 respondents) chose the option *yes,* and 86,5% (4.079 respondents) chose *no*. As it is possible to see, the vast majority of respondents have not offered classes in English, corroborating the perspective that even though EMI has been increasing in Brazilian HE in the last decades, its development is still incipient and embryonic (Gimenez et al., 2018).

Table 1. Answers to the question 'have you ever taught classes in English at your HE institution?' categorized by field of knowledge.

Field of Knowledge	Yes	No	Total of respondents
Linguistics, Literature, and Arts	65 (25,2%)	192 (74,8%)	257
Engineering	80 (17,5%)	377 (82,5%)	457
Biological Sciences	82 (16%)	438 (84%)	520
Agricultural Sciences	63 (14%)	383 (86%)	446
Applied Social Sciences	89 (13,5%)	567 (86,5%)	656
Health Sciences	110 (13,5%)	704 (86,5%)	814
Exact and Earth Sciences	90 (12,2%)	645 (87,8%)	735
Human Sciences	49 (6%)	773 (94%)	822
Total %	13,5%	86,5%	100%

As for the fields of knowledge, in *Agricultural Science*s, out of 446 total respondents, 14% of the professors have already used English to teach their classes, while 86% of them affirm they have not. In *Biological Sciences*, out of 520 answers, there is a slight increase in positive answers, with 16% and 84% negative answers. *Health Sciences* has 814 responses, with 13,5% *yes* and 86,5% *no*. *Exact and Earth Sciences* has a 735-response rate, bringing only 12,2% of affirmation for EMI practices and 87,8% of the sample saying *no* to the question. Concerning *Human Sciences*, the field of knowledge with more respondents, a total of 822, also brings the smallest number of *yes*, with only 6%, and 94% of the professors saying they have never taught in English. *Applied Social Sciences* has a total of 656 professors, and *Health Sciences* has 814 respondents. Both areas present the same figures, with 13,5% affirmative responses and 86,5% negative ones. For *Engineering*, 457 respondents divided themselves into 17,5% *yes* and 82,5% *no*. Lastly, Linguistics, Literature, and Arts counts on 257 total respondents, with 25,2% choosing *yes* to the question and 74,8% responding *no*.

The figure below shows the results from the eight disciplinary fields in a continuum.

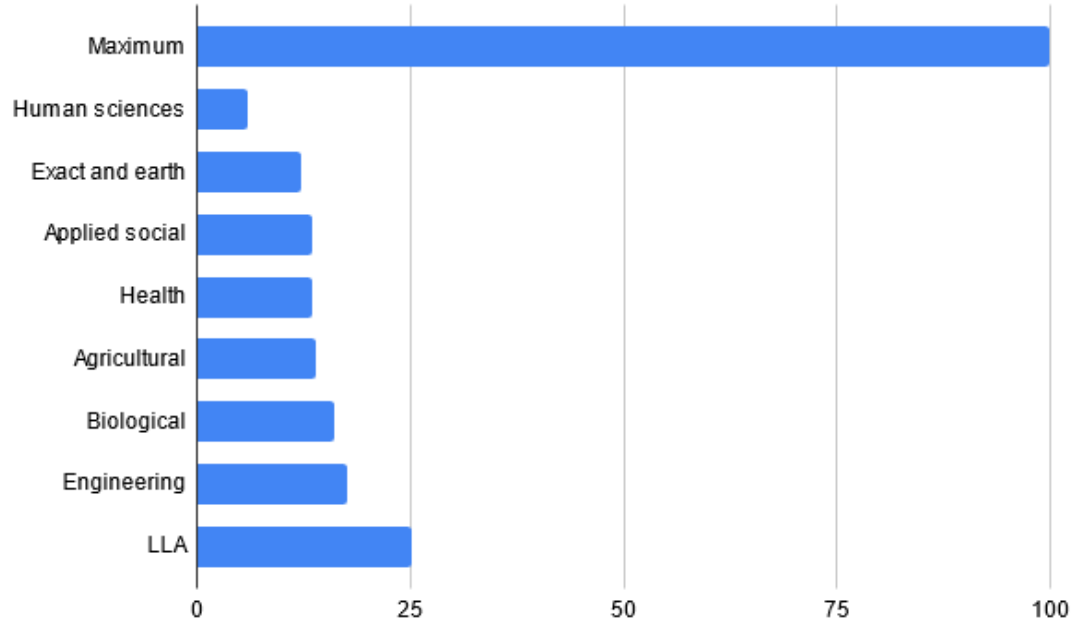

Figure 23. Fields of knowledge according to more or less use of English in Brazilian HEIs

Firstly, it is crucial to point out that two outliers are present in Brazilian HE use of English based on this study: *Linguistics, Literature, and Arts* representing the most use (25,5%) and *Human Sciences* denoting the least use (6%). As for the former, the field of *Linguistics, Literature, and Arts* shows the highest number of English classes, which can be explained by the fact that language itself is the content to be learned in TESOL Programs. This is the only field in which more than 20% of the respondents reported using English in their classrooms. According to previous studies (Kuteeva & Airey, 2014; Salö, 2010), disciplines such as *History* and *Literary* studies are more prone to resist the English language in the classroom. However, there are some possible explanations for this difference in the data. One is that Literary and Linguistic studies are often part of TESOL Programmes. Thus, the courses are taught in English when this is the students' major. Also, linguistics disciplines are known for using English in classes because a significant number of their references are written in this language. Hence, when the

field of *Linguistics, Literature, and Art*s is compared to the other ones, a substantial number of these scholars use more English in their classes than instructors in other areas.

As for the latter, *Human Sciences*, one of the main areas leaning more to the '*softer*' side of the spectrum, had only 49 professors out of 822, 6%, who answered having already offered classes in English. This is the only area with fewer than 10% of affirmative answers. This finding corroborates previous studies (Bernstein, 1999; Martin, 2011; Kuteeva & Airey, 2014) in a sense that from harder sciences to social sciences to law and humanities, the use of English decreases, considering *harder sciences* the fields of *Engineering*, *Biological Sciences*, and *Agricultural Sciences.* In this current study, *Engineering* is the second field of knowledge with the highest number of English lessons, with 17,50% of the respondents affirming they have already used the language in class; regardless, even though this field is the second to apply more English in classroom practices, it is still considerably distant from the first, *Linguistics, Literature, and Art*s, showing a difference of 8% between these two.

Biological Sciences, *Agricultural Sciences*, *Health Sciences*, *Applied Social Sciences*, and *Exact and Earth Sciences*, respectively, show 16%, 14%, 13,5%, 13,5%, and 12,2% of respondents affirming they have already taught in English. As Kuteeva & Airey (2014) predicted, *Applied Social Sciences* disciplines are in the middle of the continuum of English usage in classrooms for Brazilian HEIs even though all figures are low in terms of classes offered in English.

The present results may be interpreted according to knowledge structures. As pointed out by Bernstein (1999), the *Natural Sciences* are usually encapsulated by hierarchical knowledge structures, "in which knowledge rests upon the same foundation and is accumulated through empirical inquiry" (p.538). On the other hand, *Humanities* are known for creating understanding

through various assertions of the same phenomena and vestiges (Bernstein, 1999). In this way, the *Humanities* are at the other end of this spectrum. Thus, discipline practices and epistemologies shape and are shaped by language in a variety of fields, from sciences to the arts and humanities (Hyland, 2000; Kuteeva & Airey, 2014). Given the importance of language in the formation of disciplinary knowledge, one can assume that disciplinary distinctions will influence the use of English as a medium of teaching, with natural sciences using the language the most and humanities deploying it the least (Kuteeva & Airey, 2014).

While authors such as Kuteeva & Airey (2014) show that in their research, '*harder sciences*' tend to employ more English in their classrooms, the present results on Brazilian HE depict a reality in which all areas offer very few classes in English. Regarding professors' practices, Kuteeva & Airey (2014) also point out the role of language in the formation of knowledge and the added challenges that *Humanities* scholars face when deploying English in their educational practices (e.g., when writing in English for worldwide audiences). According to Bernstein (1999), it is only natural that different disciplines in the *Humanities* establish diverse 'languages' to accommodate various disciplinary knowledge frameworks and provide varied interpretations of the same facts. Other academic languages outside English play a vital role in this regard, as using a distinct language might provide a new epistemological perspective. This perspective indicates, for instance, that because multilingualism in academia has become less frequent in recent decades, the value of this practice has to be spotlighted in international research (Kuteeva & Airey, 2014). Another point that is brought to light is that Humanities scholars often problematize the use of English because, in terms of international research, native English speakers are frequently thought to have an edge. This reality is especially prevalent in the *Humanities*, which are constantly steeped in local traditions. In contrast, *Natural Sciences*

lean to be more “cosmopolitan” in their approach, thus favoring English use in classrooms (Kuteeva & Airey, 2014). As a result, in the view of these authors, compared to the ‘*harder sciences*’ disciplines, language choice in the *Humanities* is far more intricate and relies on the topic matter and local academic traditions. Nonetheless, it is observable that these disciplinary behaviors can be quite different in Brazilian HE due to the scattered English engagement across the fields of knowledge, as can be seen in the spectrum above.

All in all, these numbers reiterate that EMI is incipient in Brazil (Kirkpatrick, 2014; Martinez, 2016; Pusey, 2020) and support other authors’ ideas that it may reflect a lack of EMI teacher education prospects and a slim body of research on this practice. Different from European and Asian countries, where EMI shows a steady growth (Brenn-White & van Rest, 2013; Curle et al., 2020; Maiworm & Wächter, 2002; Othman & Moht Saad, 2009; Altbach & Knight, 2007; Wächter & Maiworm, 2014), Brazil still does not have precise and delineated policies toward a more international academic education (Brumfit, 2004; Curle, 2020; Hultgren, 2014a; Hultgren et al., 2015). Although some HEIs and departments show these initiatives to implement more EMI practices, these movements are still remarkably isolated and not spread throughout the Brazilian academic community (Coleman et al., 2018; Gimenez et al., 2018).

4.1 Proficiency and Use of English

In this section, two questions will be analyzed: ‘*how do you rate your general knowledge in English?*’ and ‘*how do you rate your reading knowledge in English*?’. There was a scale from 1 to 4 for the respondents to select, (1) meaning that scholars did not know English, (2) meaning basic knowledge of the language, (3) for intermediate knowledge, and (4) for those who self-evaluated as advanced users.

In table 2 below, it is possible to observe how professors self-rated their general use of English and reading in English:

Table 2. General and reading self-evaluation in English by professors.

Question	Mean (*M*)	Standard Deviation (*SD*)	Number (*N*)
General English	3.15	.768	4.706
Reading in English	3.48	.686	4.706

Regarding the results above, as the variables ranged from 1 to 4, the means show that for self-rated English reading proficiency, professors are closer to viewing themselves as advanced users since 3.48 is nearer to the maximum self-rating of 4. The figure was slightly lower for self-rated English general proficiency, with $M = 3.15$, but still between intermediate and advanced.

Concerning the questions about the use of English, five possible alternatives were evaluated for the following four questions: 1) *bibliography's language*, 2) *professor's language use in class*, 3) *students' language use in class*, and 4) *language used by students in their assignments and exams*. An arbitrary number from 1 to 5 was assigned to each possible response, and respondents could choose only one alternative. The possible responses were *only in Portuguese = 1*; *preferably in Portuguese = 2*; *in Portuguese and English = 3*; *preferably in English = 4*, and *only in English = 5*. Thus, higher numbers represent more use of English in the classroom. For professors to be led to this category, they had to answer *yes* to the questions that asked if they had previously worked at the undergraduate level and/or the graduate level at their HEIs. That is why the Number (*N*) can be slightly different for each of the four categories.

Table 3. Undergraduate use of languages.

Question	Mean (*M*)	Standard Deviation (*SD*)	Number (*N*)
Language of bibliography at the undergraduate level	2.27	.967	4.294
Language used by professors at the undergraduate level	1.14	.486	4.347
Language used by students at the undergraduate level	1.11	.426	4.340
Language used by students in tests and assignments at the undergraduate level	1.16	.534	4.352

Corroborating the view that EMI is largely incipient in the HE Brazilian scenario (Baumvol & Sarmento, 2019; Kirkpatrick, 2014; Martinez, 2016; Pusey, 2020), the mean for most of the categories tends to lean toward the option *Only in Portuguese* (Undergraduate language used by professor = 1.14; Undergraduate language used by students = 1.11, and Undergraduate tests and assignments = 1.16). The only average between *Preferably in Portuguese and preferably in English* is the language of bibliographical references, with *M* = 2.27.

Table 4 below depicts how professors respond to the same four questions considering the five options at the graduate level.

Table 4. Graduate use of languages.

Question	Mean (*M*)	Standard Deviation (*SD*)	Number (*N*)
Language of bibliography at the graduate level	3.32	1.008	3.813
Language used by professors at the graduate level	1.31	.699	3.977
Language used by students at the graduate level	1.59	1.016	3.963
Language used by students in tests and assignments at the graduate level	1.43	.783	3.966

Assessing the four categories, it can be mentioned that the language used by professors (1.31) and the language of tests and assignments (1.43) are close to the *Only in Portuguese option.* On the other hand, *the language used by students* (1.59) is closer to a mixture of *Portuguese and English*. On the other hand, unlike the mean for Undergraduate bibliography language, the Graduate bibliography language for this level of education is 3.32, meaning that English is the preferred language of the references.

4.2 Correlation analyses between English proficiency and EMI practices

In this section, correlation analyses will be conducted to demonstrate the associations between professors' self-rated general proficiency and reading in English. These two variables will be correlated with the extent to which professors use the English language in their academic practices at both the undergraduate and graduate levels. In order to correlate the variables mentioned above, the software SPSS (IBM Corp, 2021) was utilized. Pearson Correlations vary on a continuum from -1 to 1, in which -1 and 1 correspond to perfect correlations, and 0 corresponds to the absence of a correlation. Any value along the continuum may then be described according to its strength - how close to 1 or -1 it is, and according to its direction - positive or negative. Regarding strength, the Pearson correlation can be considered weak,

moderate, or strong. The values of reference here are: until 0.30, there is a weak correlation; from 0.31 to 0.60, there is a moderate correlation; from 0.61 and above, there is a strong correlation. Considering direction, negative correlations represent an inversely proportional association, whereas positive correlations represent a proportional association. In this regard, it is also crucial to mention that a correlation is a measure of association and not of cause and effect; in other words, the analysis focuses on showing how these data intersect, not how one variable causes the other.

Given the explanation about correlations, the analyses for the variables displayed in section 4.1 will now be presented. First of all, the two questions addressing the self-rated proficiency in reading and general skills in English will be explored, illustrating how these variables correlate. Table 5 below displays these associations:

Table 5. Correlation between self-rated reading and general proficiency in English.

		Reading proficiency in English	General proficiency in English
Reading proficiency in English	Pearson Correlation	1	.750**
	Sig. (2-tailed)		.000
	N	4.706	4.706
General proficiency in English	Pearson Correlation	.750**	1
	Sig. (2-tailed)	.000	
	N	4.706	4.706

The results show that *Reading proficiency in English* correlates strongly and positively with *General proficiency in English*, $r = 0.75$, $p < 0.001$. This suggests that the higher the professors self-rate as users of the language in general, the higher they rate themselves in English reading ability.

Subsequently, the variables of *Reading proficiency in English* and *General proficiency in English* of professors were also correlated with the variables of language use at the undergraduate and graduate levels, taking into account the same four questions for both levels: 1) *bibliography's language*, 2) *professor's language use in class*, 3) *students' language use in class*, and 4) *language used by students in their assignments and exams*. In Table 6 below, it is possible to see how the variables regarding proficiency correlate with the language used in the four practices cited above.

Table 6. Reading and General proficiency in English correlated with undergraduate practices.

		Reading proficiency in English	General proficiency in English
Language of bibliography at the undergraduate level	Pearson Correlation	.219**	.219**
	Sig. (2-tailed)	.000	.000
	N	4,294	4,294
Language used by professors at the undergraduate level	Pearson Correlation	.128**	.168**
	Sig. (2-tailed)	.000	.000
	N	4,347	4,347
Language used by students at the undergraduate level	Pearson Correlation	.103**	.143**
	Sig. (2-tailed)	.000	.000
	N	4,340	4,340
Language used by students in tests and assignments at the undergraduate level	Pearson Correlation	.103**	.129**
	Sig. (2-tailed)	.000	.000
	N	4,352	4,352

The results presented in Table 6 show that the correlations between both *Reading* and *General proficiency in English* and *Undergraduate bibliography language* are the same, $r = 0.22$, $p < 0.001$. This points to a weak, although significant, correlation between the proficiency values when crossed with the bibliography at the undergraduate level. Even though this is a weak

association, it is possible to say that, as this is a positive correlation, the more the professors rate themselves as proficient in *Reading* and *General English*, the more they assign bibliographical references in English at the undergraduate level.

For the other three variables, the correlations are even weaker. *Reading proficiency* and *Undergraduate language used by professors* correlate weakly and positively, $r = 0.13$, $p < 0.001$. The same is true for *General proficiency* and *Undergraduate language used by professors*, $r = 0.17$, $p < 0.001$, although a tad higher than when compared to *Reading proficiency*. This result may be explained by the fact that *General proficiency* encompasses abilities such as spoken and written language, which is probably why this value is a little higher ($r = 0.16$) than that of *Reading proficiency* ($r = 0.12$). Even though the data show weak correlations, they are positive; hence, the more the professors self-rate themselves as proficient in reading and general English, the more they speak English in their undergraduate practices.

When considering *Undergraduate language by students*, there are two, weak positive correlations between *Reading* and *General English*, respectively, $r = 0.10$, $p < 0.001$, and $r = 0.14$, $p < 0.001$. In parallel to the professors' use of English results, $r = 0.14$ for *General English proficiency* associated with *Undergraduate language by students* is slightly stronger than $r = 0.10$ for the association with *Reading in English*. Again, general abilities consider spoken and written English, which can explain this slight increase compared to reading. As they correlate positively, the more the professors are self-rated as having good general and reading proficiencies, the more students speak English in their undergraduate classroom practices.

For the last variable, the proficiencies are correlated with *Undergraduate tests and assignments language*. Once again, two positive, weak, and significant correlations can be seen. When looking at *Reading proficiency*, the data shows $r = 0.10$, $p < 0.001$; when looking at

General proficiency the data displays $r = 0.12$, $p < 0.001$. Although these are weak associations, they are still relevant ones; i.e., the more professors are self-rated as proficient in *Reading* and *General English*, the more tests and assignments they will do in English.

The following analysis will focus on the same four topics correlated with *Reading* and *General English* proficiency, but now at the graduate level. Table 7 below depicts the two proficiency columns associated with the four lines concerning this HE level.

Table 7. Reading and General proficiency in English correlated with graduate practices.

		Reading proficiency in English	General proficiency in English
Language of bibliography at the graduate level	Pearson Correlation	.378**	.310**
	Sig. (2-tailed)	.000	.000
	N	3,813	3,813
Language used by professors at the graduate level	Pearson Correlation	.190**	.223**
	Sig. (2-tailed)	.000	.000
	N	3,977	3,977
Language used by students at the graduate level	Pearson Correlation	.047**	.063**
	Sig. (2-tailed)	.003	.000
	N	3,963	3,963
Language used by students in tests and assignments at the graduate level	Pearson Correlation	.136**	.141**
	Sig. (2-tailed)	.000	.000
	N	3,966	3,966

The outcomes show that *Reading* and *General proficiency in English* moderately and positively correlate with the bibliographical references at the graduate level, $r = 0.38$, $p < 0.001$, and $r = 0.31$, $p < 0.001$, respectively. The correlation is higher for proficiency in reading skills. The more the professors self-rate as proficient readers and general users of English, the more they assign bibliographical references in English in their graduate classes.

The correlations between the proficiencies and graduate language are weakly and positively associated, $r = 0.19$, $p < 0.001$, and $r = 0.22$, $p < 0.001$. Nonetheless, the correlations are stronger when compared to the undergraduate level. For the use of English by students at the graduate level, there are very weak and positive correlations with the general and reading proficiencies, $r = 0.04$, $p < 0.001$, and $r = 0.06$, $p < 0.001$. According to these results, as professors show higher self-rated proficiency, their students use more English in their graduate practices. Note that the correlations between undergraduate students' proficiencies and use of English were higher than that of graduate students.

Lastly, the associations regarding proficiencies and *Graduate tests and assignments language* also show two weak and positive correlations, $r = 0.14$, $p < 0.001$, and $r = 0.14$, $p < 0.001$, suggesting that the more proficient professors perceive themselves to be, the more they and their students use English in their tests and assignments. Again, looking at these correlations in the two levels, we see stronger associations at the graduate than at the undergraduate level.

As can be seen, even though they are not the only variables when considering EMI engagement, proficiency issues are paramount for it to occur at Brazilian HEIs. In this way, professors and students must have a particular degree of English language competency to participate in EMI settings (Graddol, 2006). Thus, the language knowledge degree of both instructors and students may be a barrier to EMI implementation in Brazil (Martinez & Morgan, 2019). As for the numbers shown concerning professors' self-rated English proficiencies, considering that *English general proficiency* ($M = 3.15$) and *English reading proficiency* ($M = 3.48$) fall into the intermediate level, these results corroborate Martinez's (2019) perspective that if students can grasp the content of a lecture delivered in intermediate English, it may indicate that an advanced level of English is not necessary of lecturers to offer EMI courses. Regardless,

to leverage EMI deployment, the academic community's English proficiency levels must be a concern to be raised, as there must be at least a minimum threshold for English language command in the classroom (Registro & Moss, 2019).

Chapter 5: Conclusion

The general goals of the current analyses were to see how the different fields of knowledge in Brazilian HEIs employ (or not) English in their classroom practices and see how proficiency impacts EMI practices. At the first moment, it was possible to examine that the eight different fields of knowledge behave similarly in terms of English use: all fields report using more Portuguese than English in their HE practices. At the same time, the results differ somewhat from the findings from previous research. Moreover, it was also possible to see that proficiency correlates to the adoption of EMI in classroom practices in Brazil.

The research questions that guided this investigation will be discussed and answered, starting with the first inquiry:

1) to what extent do the different fields of knowledge use EMI in Brazilian HE?

When asked if they have ever taught classes in English at their institutions, professors from all the areas, in general, selected *no* with a total of 86,5%, and only 13,5% of them chose *yes*. Corroborating previous studies which refer to the EMI Brazilian situation, these results illustrate how incipient EMI practices are in the country (Gimenez et al., 2018; Kirkpatrick, 2014; Martinez, 2016; Pusey, 2020).

When looking at the eight different fields of knowledge and comparing the present results with previous research, two outliers were detected, each of them at different ends of the spectrum of English use. *Linguistics, Literature, and Arts* represents the most use (25,5%) of this language, while *Human Sciences* represents the least use (6%) at the other end. All other fields

lie within 12.2 and 17.5% of English use. For example, *Engineering* (17,5%), *Biological Sciences* (16%), *Agricultural Sciences* (14%), *Applied Social Sciences* (13,5%), *Health Sciences* (13,5%), and *Exact and Earth Sciences* (12,2%) are all leaning towards the middle of the spectrum. Thus, as percentages are somewhat close, considering a scale of 100%, it is plausible to assume that professors from these areas use the English language very similarly in their classrooms. *Linguistics, Literature, and Arts* in Brazil shows higher use of EMI, probably due to TESOL Programs, in which many courses are taught in English because English is indeed one of the main contents to be learned. *Human Sciences*, as brought by the literature, shows a decreased use due to several ideological factors, such as resistance to English and the belief it can weaken local language, as well as linguistic matters, which are based on more endocentric and locally-oriented practices, using more Portuguese rather than English (Baumvol, Sarmento, and Arêas da Luz Fontes, 2021; Lopez-Navarro et al., 2015).

Regarding the second research question:

2) what are the self-rated English proficiency levels of HE professors in Brazil?

First of all, it is essential to reiterate that self-rated language proficiency in the case of adult users/learners of a second language is an acceptable way of retrieving this type of information due to their capability of rating themselves in a somehow precise manner (Wilson and Lindsey, 1999; Scholl, Arêas da Luz Fontes, and Finger, 2021). Based on this information, these questions asked the professors to self-rate their levels on a scale from 1 (no knowledge of English) to 4 (advanced), considering language proficiency in general and just reading skills alone. The findings showed that professors in the Brazilian scenario usually regard themselves as intermediate to advanced English language users, with $M = 3.15$ in general proficiency and $M =$

3.48 for reading skills. This difference is expected because general English encompasses speaking and writing, i.e., productive skills, often regarded as the most challenging ones.

As a scale of only four levels was used for participants to rate their knowledge of English, it is difficult to make an exact correspondence to the Common European Framework, which presents six levels. Martinez & Morgan (2019) state that, in Europe, there is a kind of consensus, although not evidence-based, that professors are required to have at least a minimum proficiency of C1 (advanced) to implement EMI practices. The participants in this study did rate themselves above the intermediate level, but with general proficiency being rated 3.15, it is reasonable to conjecture that this would be a B2 level. In countries such as Brazil, where the proficiency level of the population is rather low, despite the lack of official data considering English proficiency, deciding that C1 or advanced is the minimum threshold for implementing more English in classrooms would preclude EMI projects. In this way, if students, both local and foreigners, can understand what the professors deliver when using intermediate+ English, this would probably suffice, especially considering the low figures in terms of international students in Brazilian classrooms, with 17,326 in 2017 and 12,728 in 2018 (Gimenez et al., 2018), which would allow professors to code-switch between English and Portuguese.

Concerning the third and last question of research:

3) how do these self-rated proficiency levels relate to EMI practices at the undergraduate and graduate levels?

In this regard, as the data show, proficiency variables correlate significantly to EMI implementation matters. Even though most correlations are weak (below 0.31), they point to the idea that the more the professors consider themselves proficient in English, the more they speak English in class, the more their students speak English in class, and the more they tend to use

English in their bibliographical references and in students' assignments and tests. The fact that these correlations are weak suggests these variables do not share many variances and thus implies that other variables might also be at play. Other variables thought to relate to language preference, such as frequency of use and motivation to learn via an L2, should be investigated in future research.

5.1 Final Considerations

Authors such as Shohamy (2013) and Goodman (2014) point out that internationalization policies that force institutions to offer only English-medium education may harm multilingualism and linguistic variety. This reality may be true in some countries, such as Spain, where English has suppressed Basque and Catalan at HE (Dafouz et al., 2014). However, no language policies are forcing Brazilian professors or students to adhere to EMI practices in Brazil. On the contrary, there is a lack of explicit language policies considering the implementation of English at HE levels (Archanjo, 2017; Guimarães et al., 2019). What is actually seen in Brazil's case is the opposite of what happens in Spain because EMI has only been adopted through the efforts of a few faculty members and departments (Coleman et al., 2018; Gimenez et al., 2018). Thus, the numbers above, gathered from the questionnaire study, corroborate the literature. If EMI was forced in Brazil, it is believed that *yes* answers would surpass the meager amount of 13,5% of professors having already offered classes in English.

As can be seen in the present research, numerous factors are in play when it comes to enacting EMI practices. The focus of this study is on proficiency levels and how they correlate to EMI activities at HE; nevertheless, many other aspects have to be taken into account by Brazilian HEIs and governments when it comes to providing more English-medium courses for the academic community. As mentioned throughout the literature review, more delineated linguistic

policies are paramount for such endeavors to be enforced in Brazil (Aizawa & Rose, 2019; Archanjo, 2017; Guimarães et al., 2019; Vu and Burns, 2014), allowing for students and professors to have more opportunities in the fast globalizing and internationalizing world.

Along these lines, some of the limitations of the present analyses are that the data are solely based on quantitative results. In this way, it is believed that more qualitative analyses would allow for EMI in the Brazilian academic backdrop to be scrutinized in an amplified way. For this, interviews could be conducted with professors from different fields of knowledge in order to understand, through face-to-face interaction, how English is present in their academic practices. Moreover, in this study, general sets of correlations were analyzed, considering the total number of respondents to the questions in the questionnaire. However, the correlations can also be carried out in the future by considering each of the eight fields of knowledge, seeking to grasp how each of them, individually, shows their behaviors when associating proficiency variables to the EMI practices analyzed in the current investigation.

Ultimately, final considerations on EMI practices in Brazil are essential. As reiterated several times throughout the present study, this approach is still in an incipient phase in the country (Gimenez et al., 2018; Kirkpatrick, 2014; Martinez, 2016; Pusey, 2020). Additionally, a lack of a better understanding of what EMI actually is and what it comprises also makes it difficult for scholars to implement this approach (Airey, 2016; Macaro, 2018). Airey (2016) mentioned that language and content are intricately linked, so it is time for governmental agencies and HEIs to start educating their professors and students on these matters if they want to be part of a global reality. Thus, it is time for more linguistic policies to be implemented when it comes to English practices at the HE levels if Brazil intends to be a part of the international community (Ball and Lindsay, 2013; Gimenez et al., 2018; Gimenez & Marson, 2022;

Guimarães & Kremer, 2020; Kirkpatrick, 2014; Martinez, 2016; Martinez & Morgan, 2019; Pusey, 2020).

Nonetheless, challenges and tensions are also raised regarding EMI practices. Due to its rapidly increasing globalization aspects, English can be seen as a threat to other languages and cultures, posing opposition to multicultural and multilingual practices. In this way, EMI, if not developed in a way that also gives space to other cultures and languages, not solely based on the global North realities, can indeed pose a cultural problem (Coleman, 2006; Dafouz et al., 2014; Doiz et al., 2012; Kırkgöz, 2005; Shimauchi, 2017; Shohamy, 2007; Yoshida, 2014). In the context of Brazil, considering the Portuguese language, these aspects should also be regarded to ensure there is diversity at HEIs. These are some reasons why more specific language policies are paramount on Brazilian grounds.

In terms of teaching preparation for EMI settings, there is still a small number of programs at HEIs focusing on staff training for the Brazilian academic community (Ball and Lindsay, 2013; Martinez, 2016). One of the fundamentals in Brazil is to improve teachers' understanding of EMI's pedagogy and promote awareness of historical and present difficulties, i.e., obstacles, policies, benefits, and drawbacks (Pusey, 2020). Thus, although the foci of the present analyses were based on English proficiency, there are more concerns than just language qualification in the matter of EMI implementation.

However, as analyzed in the current study, proficiency matters cannot be underplayed (Martinez & Morgan, 2019). As the correlations showed, the more the professors self-rate themselves from intermediate to advanced users, the more they use English in the four variables considered in the research (bibliography, language used by professors, language used by students, and the language used for tests and assignments). Along these lines, it is crucial to

overcome language barriers and enable many more academics to join international research and teaching networks, all of which are important to Brazil's internationalization drives (Gimenez et al., 2018). Retrieving the question "why would EMI be important in a developing country such as Brazil?" (Baumvol & Sarmento, 2019, p.95), one of the answers is that EMI may help create an environment conducive to incidental English competency growth (Hulstijn, 2013; Muñoz, 2012). Accordingly, students and professors may gain even more from EMI because they will be able to participate in authentic practices that necessitate the use of English (Pusey, 2020).

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