

English medium instruction, EAP/ESP: Exploring overlap and divergences in research aims

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Abstract

English medium instruction (EMI) is now a well-established field of education research, yet its distinction from English for academic purposes (EAP) and from English for specific purposes (ESP) remains a subject of debate. This scoping review investigates the overlap and divergences between these fields. As well as using raw data from a previous systematic review of EMI, we identified research questions published in five selected journals between 2017 and 2022: *Journal of English for Academic Purposes*, *English for Specific Purposes*, *International Journal of Bilingual Education and Bilingualism*, *Language and Education*, and *Journal of Multilingual and Multicultural Development* in order to identify the convergence and divergence in academic interest areas. We additionally examined research settings and participants across these studies. Our findings revealed a spectrum of research questions with largely distinct areas of research interest and considerable differences in research settings. This study contributes to the academic discussion by offering a detailed picture of the current research landscape, and suggests not only a need for collaboration between EMI, and EAP/ESP researchers but also a value in maintaining some distinction between the two fields.

KEYWORDS

academic publications, English for academic purposes (EAP), English for specific purposes (ESP), English medium instruction (EMI), research aims, research settings

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論文の要旨

英語を媒介言語とする教育 (EMI) は、現在、教育研究の確立された分野ではありますが、学術目的の英語 (EAP) および特定目的の英語 (ESP) からの区別は、依然として議論の対象となっています。このスコーピングレビューは、これらの分野間の重複と相違点を調査することを目標とします。本研究ではEMIに関する以前の系統的レビュー (2012年以降) からのデータに加えて、2017年から2022年の間に選出された5つのジャーナル (Journal of English for Academic Purposes, English for Specific Purposes, International Journal of Bilingual Education and Bilingualism, Language and Education, and Journal of Multilingual and Multicultural Development) に掲載されたEMIとEAP/ESPの論文の研究質問 (リサーチクエスチョン) と研究設定 (リサーチコンテキスト) を特定し、分野間の学術的関心領域の重複と相違点を特定しました。この研究を通してEMIおよびEAP/ESP研究者間の協力の必要性を唱える一方で、2つの学術分野間の明確な区分も重要であることを示唆します。

キーワード

英語による専門科目の授業, 学術目的のための英語, 特定目的のための英語, 研究目的, 学術出版物

1 | INTRODUCTION

1.1 | Situating English medium instruction

It has become a widespread and consistent practice to begin abstracts and/or introductions to research articles on English medium instruction (EMI) with phrases such as:

- EMI in China 'has gathered great momentum' (Hu, 2009);
- 'English-taught Programmes (ETPs) have increased exponentially in European universities over the last 10 years' (Costa & Coleman, 2013, p. 3);
- 'the increasing use of English as a medium of instruction (MOI) in politics across the world...' (Hamid et al., 2013, p. 2);
- 'English-medium instruction (EMI) programmes have been mushrooming in the last two decades' (Lasagabaster & Doiz, 2022, p. 1);
- EMI has 'grown at an exponential rate globally' (Akincioglu, 2023, p. 1).

These starting point phrases are often accompanied by assertions that the growth of the EMI phenomenon has been matched by an impressive growth in academic publications on the subject (Macaro & Aizawa, 2022; Wingate &

Hakim, 2022). Yet, despite this considerable academic effort it would appear that EMI is still developing its position in the broader fields of 'Applied Linguistics' (Kuteeva, 2023) and/or of 'Education' and this situation has in fact provoked useful and continuing debates.

The first of these debates concerns the national and geographical locations for the phenomenon of EMI. An often used definition of EMI is: 'The use of the English language to teach academic subjects (other than English itself) in countries or jurisdictions where the first language of the majority of the population is not English' (Macaro, 2018, p. 1). Akincioglu (2023, p. 4) adds to this definition by pointing out that the teaching and learning in EMI contexts is not exclusively in English and can involve 'the use of English (for example sole use, partial use, code switching and so on)'. In fact, it should be noted here that most definitions of EMI (see a list given by Pecorari & Malmström, 2018) do not assert that *only English* is used in non-Anglophone countries, nor do definitions state or imply the extent that it is being used, merely that it is being used.

Pecorari and Malmström (2018) argue that the label EMI should not be restricted to non-Anglophone countries and imply, for example, that international (i.e., non-Anglophone) engineering students in the United States have very similar experiences to those students studying the same subject through English in countries where, for the majority, English is not the first language. Seeming to abide by the same argument, Jenkins and Mauranen (2019) incorporate a section on 'The Anglophone World' in a volume sub-titled 'Insider accounts of the use of English and other languages in universities within Asia, Australasia and Europe'. Rose et al. (2021) have countered the proposal to include Anglophone countries as part of the EMI concept on the basis (inter alia) of lack of equivalence historically, lack of equivalence in English language admission requirements, and lack of equivalence in educational policy making. Nevertheless, given this area of debate, one of the aims of the current research is to ascertain the extent to which academic publications labelling themselves 'EMI' have indeed followed the contention about broadening its definition and have therefore carried out research labelled EMI in Anglophone countries. The location of EMI studies (in comparison to the location of EAP/ESP studies) is relevant to our second area of interest in the current research.

The second, and, for the purposes of this paper, the more important debate about what EMI actually is, can be found in publications arguing its status as an academic discipline worthy of separate investigation. Pecorari and Malmström (2018) talk about 'the very natural connection between EMI and TESOL' (p. 509). Wingate (2022) asks whether English for academic purposes (EAP), in providing support for students and teacher education, is merely the other side of the coin to EMI (p. 1). Galloway and Rose (2022) whilst in agreement that EMI and EAP are related 'where academic English needs are of concern', argue that they 'can also be considered as 'separate disciplines' given the wider research agenda in the field of EMI' (p. 540). Given that many of the students to whom both EMI and EAP/ESP research relates are the same, then it is important to ascertain how similar or complementary the academic agendas are of the two research fields.

A number of other researchers have delved into the relationship between EAP (or ESP) and EMI (e.g., Dafouz, 2021). As a result, some of these authors complain about the lack of 'specific English training and support for graduate students' (e.g., Lee & Lee, 2018 in Korea). Galloway and Ruegg (2020) reported that the support provided for EMI students in Japanese and Chinese EMI programmes was variable in nature. Arnbjörnsdóttir (2017) argued that students transitioning from EFL programmes to university EMI programmes face the 'hidden challenges' posed by much needed academic skills, implying that some of these challenges are not being met by current support provision.

Björkman (2011) proposes that since 2000 the focus in EAP has 'shifted from written discourse to spoken discourse' because of the increasing availability of spoken corpora—and focuses on non-standard usage of English. If this is the case then one might expect to see, in recent years, a number of EAP/ESP research papers describing how spoken discourse is being used by EMI teachers and learnt by students in EMI settings and how the issue of non-standard usage is being dealt with. Indeed, one might expect to see, in EAP/ESP research, studies of how students cope or are adapting to the content teacher's¹ spoken academic discourse—a similar observation made by Mauranen (2022).

Not surprisingly, given the challenges reported by EMI students, a number of publications have called for collaboration between EAP/ESP teachers and academic content teachers (Lu, 2022; Davison, 2008). Arnó-Macià and

Guzman (2014), indeed do not use the acronym EMI in their paper based in HE, preferring instead the acronym CLIL (Content and Language Integrated Learning). They argue that integration and collaboration should take place not only by providing an important place for language in content courses (academic disciplines other than English) but also by providing an important place for content in language courses (EAP and ESP). Galloway and Rose (2022) propose that cross-fertilisation between the two fields of study would certainly be beneficial and, indeed point to the beginnings of some 'knowledge exchange' (p. 539).

1.2 | Situating EAP/ESP

We quote at some length from the introduction to the volume on EAP by De Chazal (2014): 'As its name suggests, *English for academic purposes involves the teaching and learning of English language so that students can operate effectively in the disciplines i.e. in their specific subject(s) in an academic institution, typically a university*' (p. 5) and 'EAP is not concerned with teaching subject content. Rather it aims to develop key academic skills, language and competences; students subsequently or concurrently learn about their specific subject' (p. 7). Here then is an implication that what EAP teachers do, whether prior to a course or on a regular basis, is provide HE students with a particular type of language support. Moreover, there is a strong implication that what is taught are standard varieties of English. In their edited volume on ESP, Paltridge and Starfield (2013) introduced the topic by referring to a gradual shift in ESP research and theory from needs assessment (of students), linguistic devices and rhetorical purposes, technology, genre (1981–1990 [pp. 9–12]) to what they call the 'Modern Age' of ESP with themes such as intercultural rhetorics, genre (which is presented as 'the central concept') and corpus studies (pp. 12–15). Here too, the focus appears to be almost uniquely on academic language (and more specifically genre), on standard varieties, and less on the actual teaching and learning experience of, in our case, EMI students.

Hyland and Jiang (2021a) used a bibliometric technique to carry out exhaustive searches and examination of EAP. They described this technique as 'the application of mathematics and statistical methods to the analysis of academic publications' (p. 3). The technique enabled them to document and track changes in EAP research' over the period 1980–2020. A similar technique was used by the same authors (Hyland & Jiang, 2021b) to track changes in ESP publications. Importantly, for the purposes of the current study, they disclose that 'to identify potential themes we focused on nouns, which offer a more productive way of capturing themes than other parts of speech' (p. 16, our emphasis). Their results appear to show that, though topics such as teaching and learning, and general classroom practices have continued to be a focus of ESP research interest, post-2001 there has been an increasing 'focus on contexts and discourses'. By contexts, Hyland and Jiang (2021a, p. 9) appear to be referring to 'real-world contexts' in which a specific genre of language is being used. When these authors refer to teaching and classroom practice, they do, quite naturally given their publication context, mean the practices to be found in EAP/ESP classrooms, not EMI content classrooms. They also conclude from their findings that after 2001 the topics have centred on 'the contexts, discourses, and implications of these practices with substantial attention devoted to issues of identity, interaction and genre' (p. 9). If we look at one of the tables provided by Hyland and Jiang (2021a, p. 5) we note that among the topics of research which have significantly increased are identity, academic writing, genre, learning process, peer assessment, and professional development (of EAP teachers).

In Hyland and Jiang (2021b) the authors focused on ESP publications and concluded that 'The results indicate that classroom practices remain central to the discipline and that there has been a consistent interest in specialised texts, particularly written texts' (p. 13). Again, we can assume that by 'classroom practices' they are referring to classes where English as a subject is being taught for specific purposes. Their methodology shows that the research topics which have significantly increased in ESP publications are Discourse, Literacy, Curriculum, Assessment, Corpus, Genre, and Professional Development (by which, once again, we assume is the professional development of ESP teachers). This assumption can reasonably be made because Hyland and Jiang (2021a) and Hyland and Jiang (2021b; ESP) are extracting their data from EAP and ESP journals, respectively.

One of the intentions of the current paper is to adopt a different search and identification methodology from the one adopted by both the above publications, one more suited, we would argue, to identifying research questions across two independently developing research domains (EAP/ESP vs. EMI).

1.3 | Reviews of EMI research

A number of systematic reviews have been carried out to date of articles in EMI. One of these was carried out by Macaro et al. (2018). Of the studies identified in HE, the most common themes being researched were: EMI policy, EMI teacher beliefs, EMI student perceptions, and the English proficiency required to teach content through English. As we have used the raw data from that study to contribute to the current study we will not discuss it further here.

Other systematic reviews have focused on particular broad aspects of EMI. For example, Rubio-Alcalá et al. (2019, p. 191) focused on evidence of key outcome variables such as student performance, student second-language proficiency, employment, motivation, and attitudes. Dang, Bonar and Yao (2020) tracked articles on the challenges faced by EMI teachers, the extent that they had been well prepared and supported in their teaching, and the professional development opportunities available to them 'to help them deal with EMI-related challenges' (p. 3). Williams (2015) limited his systematic review to South Korea and to the following themes: EMI teacher and student language proficiency, the demands of different academic institutions and the level of support provided for teachers and students. Finally, Wu and Tsai (2022) used a bibliometric search process to explore the frequency of authors, journals, and countries/regions of origin of EMI studies between 2005 and 2021, via their corpus of 105 published studies.

Thus, to our knowledge no detailed review focusing specifically on research questions has been carried out in EMI in HE. Moreover, it is still not clear as yet how the two research fields of EMI and EAP/ESP are inter-related and what empirical evidence both fields draw upon in order to make informed pedagogical decisions. This is because of the different methodologies used to ascertain the topics of these studies. Therefore, the main aim of the current paper was to ascertain the extent to which EMI and EAP/ESP do in fact have similar research agendas. We attempt to do so using *the same analysis strategy for both fields*.

2 | THE STUDY

This study investigated the overlap and divergences between EMI and EAP/ESP research by addressing the following four research questions:

1. What have been the research aims of journal articles in the field of EMI over the period between 2000 and 2022?
2. What have been the research aims of journal articles in the field of EAP and ESP over the period between 2017 and 2022?
3. Where have research studies in EMI and EAP/ESP been located and/or who have been the research participants?
4. What is the degree of overlap between the research aims/locations of EMI and EAP/ESP?

2.1 | Data collection

Drawing from the mapping grid developed by the first author in a previous systematic review (Macaro et al., 2018), we devised a coding grid to review articles and identify research themes related to EMI and EAP/ESP. This grid served as a structured template, designed to categorise items extracted from research articles. It took the form of a spreadsheet with pre-defined columns and descriptors one of which detailed the research questions. The grid then generated keywords or relevant terms that captured the core theme of the research papers. To provide further context, the

publication dates and, importantly, to answer research question four, the research settings, including the locations where data were collected from participants and whether the research was desk based, were also extracted.

We then conducted a pilot review to ensure consistency in the extraction of key information from the articles by both researchers. The important issue here was the extent to which it was possible to convert research questions provided in the articles into keywords that could then be reported as the 'themes' of research in the respective academic fields. The piloting involved analysing 10 articles from EMI studies selected from papers reviewed in the previous systematic review on EMI. Additionally, we selected five papers each from *English for Specific Purposes (ESP)* and *Journal of English for Academic Purposes (JEAP)*. Each author independently reviewed the articles and developed broad topic areas of research themes. For each paper, two to five keywords were extracted. Upon completion of the initial review, we discussed potential areas of discrepancies regarding the keywords identified. In instances where discrepancies in our coding emerged, further discussion was undertaken to achieve consistent coding. We identified differences in our selected keywords for two EMI articles and one ESP article during this review exercise. For example, in an article examining the use of mind-mapping in the note-taking habits of engineering students on an EMI program, the first author assigned the keyword 'student strategy', while the second author proposed 'student perception'. Upon further discussion centred on the content of the paper, we agreed to assign both of these keywords to this article. Following this review exercise, the coding grid was finalised along with a provisional list of broad topic areas for EMI and EAP/ESP research.

The five journals identified for the main review were *Journal of Multilingual and Multicultural Development (JMMD)*, *International Journal of Bilingual Education and Bilingualism (IJBEB)*, *Language and Education (LE)*, *Journal of English for Academic Purposes (JEAP)*, and *English for Specific Purposes (ESP)*. For EMI research, JMMD, IJBEB, and LE were selected, because they were highlighted in a previous review (Macaro & Aizawa, 2022) as journals that consistently publish a significant volume of EMI research in the field. JEAP and ESP, while recognising their publication of a small number of EMI papers, were selected as journals dedicated to EAP/ESP research.

As part of our inclusion criteria for both EMI and EAP/ESP research, only peer-reviewed journal articles were considered, excluding book reviews, editorials, opinion pieces, or systematic reviews. The cut-off line of 2017 was established as the starting point for this review because it marks the coverage end of the previous systematic review. All research papers published in JEAP and ESP were included in the study between 2017 and 2022, amounting to 317 and 174 papers in JEAP and ESP, respectively (a total of 491). For research on EMI, the initial screening involved reviewing the titles and abstracts of articles published between 2017 and 2022. This resulted in reviewing a total of 19, 101, and 15 EMI papers for JMMD, IJBEB, and LE, respectively. Our study also included an additional 73 EMI papers from the previous systematic review, covering publications from 2000 to 2015. This provided a total of 208 papers on EMI. After conducting the main review, we further excluded three papers that were not related to EMI, resulting in 205 papers to be included in the final data presentation.

In terms of data analysis, acknowledging the methodological limitations which could be attributed to the review by Hyland and Jiang (2021a), which used a bibliometric technique from very large datasets, this study adopted thematic analysis by examining research questions, clustering similar topics, and dividing broad categories into specific sub-themes. Research themes with overlapping codes were merged and clustered into broader categories, each representing a range of related topics. For instance, *pedagogical strategies* were formed by grouping codes: *classroom interaction*, *translanguaging*, and *language scaffolding*. Conversely, research themes with distinct codes were further divided into separate categories. For instance, *language proficiency* and *learning outcomes* were initially grouped into one category as *effects of EMI* but were later divided into two distinct research themes. This was completed by further developing categories that concerned *language learning* and *content learning*, respectively. The geographical distribution of all research papers was examined to identify potential patterns in research settings and to identify research participants.

We then analysed our data to identify the overlap and divergences between the research areas of EMI and EAP/ESP by comparing frequency of research themes/questions. This comparison enabled us to determine, as precisely as possible, which themes were prevalent across both fields and which were field specific.

TABLE 1 Key areas of interest in English medium instruction research.

	Research themes	Keywords	Frequency	Typical research questions
1	Teacher and student perceptions and beliefs	Students' program evaluations; teachers' beliefs about (e.g.) translanguaging; motivations	35.6% (<i>n</i> = 74)	What are the perceptions of teachers and students regarding the effectiveness of EMI in achieving academic and linguistic objectives?
2	Language proficiency	Academic writing and listening proficiency; IELTS; English proficiency	13.9% (<i>n</i> = 29)	In what ways do students' language proficiency levels affect their content learning in EMI courses?
3	Content learning outcomes	Content learning; GPA; final grades	13.0% (<i>n</i> = 27)	How is content learning affected by participation on an English-taught programme?
4	Classroom interaction and discourse	Communication patterns; student-initiated questions in interactions	10.7% (<i>n</i> = 22)	How does classroom interaction in EMI settings influence student engagement and learning outcomes?
5	Pedagogical strategies	Translanguaging (use of L1) in science lessons; collaborative learning; language scaffolding	10.2% (<i>n</i> = 21)	What strategies do teachers employ to scaffold content and language development in EMI settings?
6	Language policy and attitudes	Mandatory versus optional CLIL; plurilingual approaches in policy; language policy in HE	8.7% (<i>n</i> = 18)	How do language policies in higher education influence the implementation and outcomes of EMI programs?
7	Teacher training and professional development	EMI-specific pedagogical training; continuous professional development models	6.8% (<i>n</i> = 14)	What forms of teacher training are necessary to equip educators with the skills required for effective EMI teaching?

3 | FINDINGS

In addressing research question one, we examined the research aims of 205 EMI papers. As can be seen in Table 1, a list of seven themes was generated, representing an overview of the key areas of interest. Recall that each theme represented multiple categories of keywords reflecting a recognisable strand of research questions.

Teacher and student perceptions and beliefs constitute the largest portion of the EMI studies reviewed, examining beliefs about learning outcomes, experience, challenges, motivations, attitudes towards language learning, and qualitative assessments of bilingual programs. These studies also investigate how learners regulate their language learning and the impact of these strategies on academic performance, focusing on learning affordances and the perceived opportunities and constraints of learning through the lens of student agency and perception.

Language proficiency and content learning outcomes form a core part of the EMI literature. While some research investigates the relationship between language proficiency and content outcomes, other studies explore the effects of EMI (as opposed to L1 medium of instruction) on content learning. Others still explore how efficient EMI is in improving language learning.

Classroom interaction and discourse analysis reveal communication and conversational patterns in EMI classrooms including an exploration of the specific nature of questions and interactions that characterise the dynamics of EMI classrooms. Connected to this are EMI teachers' *pedagogical strategies* which emerge as a key research theme, primarily focusing on translanguaging (use of both L1 and English), interactional practices, teacher questioning, and collaborative learning. The specific goal of these strategies is effective teaching, with a particular emphasis on the co-construction of content knowledge and language development in EMI.

Language policy and attitudes in EMI involve an examination of issues around language ideology, particularly the tension between English-only and plurilingual approaches in multilingual classrooms, reflecting broader societal, cultural,

TABLE 2 Key areas of interest in English for academic purpose/English for specific purpose research.

	Research themes	Keywords	Frequency	Typical research questions or aims
1	Corpus analysis and text analysis	Corpus tools; error types; uptake	46.3% (n = 222)	For which error types are the use of corpus tools most effective as measured by the successful learner uptake of correct forms?
2	Discourse and genre analysis in academic writing and speaking	Discourse; genre, you-mentions; argument genre; comparative analysis	15.0% (n = 72)	How do the discourse functions of explicit 'you-mentions' in conference presentations differ between native and non-native speakers?
3	Teacher and student perceptions and beliefs (of EAP/EASP)	Lecturer accents; perception; comprehension; effective delivery; strategy	10.2% (n = 49)	To what extent do students perceive that ESP courses prepare them for academic and professional communication?
4	Linguistic features	Linguistic features; prepositions; lexical bundles; error analysis	7.1% (n = 34)	What are the patterns and deviations in the use of English prepositions in lexical bundles in essays by Korean university students?
5	Academic vocabulary	Academic vocabulary; EAP materials; Academic Vocabulary List (AVL); The British Academic Written English Corpus (BAWE); frequency analysis	6.4% (n = 31)	How frequently do academic lemmas appear in EAP materials, and how does this frequency align with benchmarks such as the AVL and BAWE corpus?
6	Doctoral thesis analysis	Doctoral thesis; academic writing; needs analysis; activity theory	6.1% (n = 29)	What are the challenges faced by PhD students writing thesis 'discussions'?
7	Language assessment and dynamic assessment	Language assessment; dynamic assessment	3.8% (n = 19)	What are the effective dynamic assessment methods in EAP?
8	Teacher training and professional development	ESP teacher identity teaching competencies; peer observation	3.0% (n = 13)	How do teacher candidates perceive the contribution of implicit and explicit genre awareness to their professional development?
9	Curriculum and academic materials	Curriculum; EAP materials; academic vocabulary; incidental learning; material assessment	2.1% (n = 10)	How effective are in-house printed EAP materials at introducing general academic vocabulary to students?

and educational issues. This also emerges as a key research concern in policy development, with studies exploring the motivations and outcomes behind linguistic decisions in higher education.

Lastly, *teacher training and professional development* of content teachers are key areas of interest within EMI research. This focus includes developing EMI training programs, continuous professional development models, fostering collaboration between content and language teachers, and conducting needs analysis to ensure effective instruction in EMI settings.

To answer research question two, we examined the research aims of 491 EAP/ESP articles. After conducting the main review, we further excluded 12 papers that did not fall under any of the key research themes, resulting in a total of 479 papers to be included in the final data presentation. Table 2 provides an overview of the research themes divided into nine categories, each representing a distinct thematic strand within EAP and ESP research, with studies intersecting linguistic analysis, pedagogical strategy, material design, and professional practice.

In the EAP/ESP literature, *corpus and text analysis* emerge as a key research theme, primarily focusing on the analysis of identifying patterns, frequency, and usage of specific linguistic features, including pronouns, determiners, and lexical bundles, across different disciplines and also in relation to levels of learners. The research examines the effectiveness of corpus tools in addressing error types in learner data, with a particular focus on the uptake of correct forms after error correction.

Discourse and genre analysis in EAP/ESP literature explore the discourse functions of persuasion, argument genre, first-person pronouns, and explicit mentions of 'you' in academic speaking, including lectures, TED talks, and academic presentations. Research extends to the 'move analysis' of grant proposals and academic publications, examining, for instance, the informality proscribed in academic writing, with a focus on the normative structures of academic discourse.

Research on *teacher and student perceptions* explores the effectiveness of ESP courses, the impact of lecturer accents on comprehension, and the perceived preparation for academic and professional communication.

Linguistic features also constitute a significant portion of EAP/ESP research, investigating the use of prepositions within lexical bundles in student essays, and modifiers in PhD defence discourse. It extends to the prosody of language, including rhythm and intonation, particularly in specialised contexts such as Aviation English. Studies also examine semantic patterning, phraseology, formulaic language, and rhetorical conventions. Similarly, *Academic vocabulary* investigates the frequency and representation of academic vocabulary in TED talks and lecture discourse corpora, assesses the suitability of these talks for academic listening, and analyses the alignment of vocabulary used in EAP materials with the Academic Vocabulary List (AVL) and corpora.

Another core research theme includes *doctoral level education* exploring PhD thesis writing, specifically the genre conventions, authorial voices, resource preferences, and needs and problems of both L1 and L2 doctoral students. The research investigates the influence of discipline, writing stage, and research type on students' perceptions of thesis writing.

Language assessment and dynamic assessment focus on the effectiveness of various assessment tools and strategies, aiming to improve the ways in which language proficiency and academic outcomes are measured and supported.

Teacher training and professional development is an important research theme that explored the identities and competencies of ESP teachers, the role of peer observation, and the perception of genre awareness in professional development.

Lastly, *curriculum and materials* examine the development, effectiveness, and assessment of EAP/ESP materials. The focus is on how these materials facilitate the learning of academic vocabulary, addressing the effectiveness of the materials in meeting the academic vocabulary needs of students and influencing curriculum design and material development.

To summarise, EAP/ESP research has primarily focused on the analysis of academic discourse, the study of linguistic features in student academic writing, and the effectiveness of English teaching methods and materials in academic and professional settings. Linguistic feature analysis remains a prominent area of research enquiry, with a specific emphasis on lexical bundles and prepositional usage in student writing in academic disciplines and professional settings.

In order to answer research question three, we explored the settings/locations in which research was conducted, including data collection involving desk-based analysis of text or corpora (Tables 3 and 4). The tables show the number of countries listed by their frequency of mention in the research, grouping those with the same frequency on a single line. The overall frequency sums up the total mentions for grouped countries, reflecting the aggregate data across multiple research contexts. Our findings indicate that in EMI research, there has been a strong European focus, particularly in Spain, with 36 contributions, along with significant contributions from Asia, especially China and Hong Kong, with 17 and 15 studies, respectively. Studies in Turkey, Iraq, South Africa, and Japan, demonstrate a global interest in EMI across diverse educational and language policy contexts. We should note that the United States (Infante & Licona, 2021; Poza, 2018) and Canada (Cammarata & Haley, 2018; Crossman, 2018) are each represented by only two studies, and the United Kingdom (Baker & Hüttner, 2017) by only one study. Moreover, the single study from the United

TABLE 3 English medium instruction research location/settings.

Research location/context	Frequency per location	Overall frequency
Spain	17.6% (n = 36)	17.6% (n = 36)
China	8.3% (n = 17)	8.3% (n = 17)
Hong Kong	7.3% (n = 15)	7.3% (n = 15)
Turkey	6.8% (n = 14)	6.8% (n = 14)
Japan	5.4% (n = 11)	5.4% (n = 11)
South Korea, Austria, Netherlands	4.4% (n = 9)	13.2% (n = 27)
Sweden	2.9% (n = 6)	2.9% (n = 6)
Colombia, Denmark, Finland	2.4% (n = 5)	7.3% (n = 15)
Bangladesh, Taiwan, Italy	2.0% (n = 4)	5.9% (n = 12)
Malaysia	1.5% (n = 3)	1.5% (n = 3)
Canada, the United States, Saudi Arabia, Thailand, Indonesia	1.0% (n = 2)	4.9% (n = 10)
Argentina, Czech Republic, Estonia, Germany, Iraq, Israel, Kazakhstan, Latvia, Mozambique, Nepal, Oman, Poland, Qatar, Rwanda, Serbia, Singapore, Slovakia, South Africa, Ukraine, United Arab Emirates, Vietnam, the United Kingdom	0.5% (n = 1)	10.7% (n = 22)
Others (Internet-based, desk-based approach)	0.5% (n = 1)	0.5% (n = 1)
NA (not mentioned)	7.8% (n = 16)	7.8% (n = 16)

TABLE 4 English for academic purpose/English for specific purpose research location/settings.

Research location/context	Frequency per location	Overall frequency
Corpus-based, desk-based research	24.4% (n = 117)	24.4% (n = 117)
China	12.9% (n = 62)	12.9% (n = 62)
The United Kingdom	9.4% (n = 45)	9.4% (n = 45)
The United States	8.8% (n = 42)	8.8% (n = 42)
Australia, Hong Kong	3.5% (n = 17)	7.1% (n = 34)
Canada, Iran	2.7% (n = 13)	5.4% (n = 26)
New Zealand	2.3% (n = 11)	2.3% (n = 11)
Spain, Vietnam, Japan	2.1% (n = 10)	6.3% (n = 30)
South Korea	1.7% (n = 8)	1.7% (n = 8)
Turkey, Taiwan	1.5% (n = 7)	2.9% (n = 14)
Austria, Thailand, Russia	0.8% (n = 4)	2.5% (n = 12)
Denmark, Brazil, Hungary, Slovakia, Portugal, India, Saudi Arabia, Finland, Singapore, Sweden	0.6% (n = 3)	6.3% (n = 30)
Malaysia, Poland, Russia, Thailand, Vietnam, Netherlands	0.4% (n = 2)	2.5% (n = 12)
Iraq, Croatia, South Africa, Italy, Chile, Ghana, Indonesia, Israel, Kazakhstan, Lebanon, Macau, Mexico, Nepal, Oman, Philippines, Romania, Slovakia, Sri Lanka, Uzbekistan	0.2% (n = 1)	4.0% (n = 19)
NA (not mentioned)	3.5% (n = 17)	3.5% (n = 17)

Kingdom was a comparison study with Thailand and Austria. There was also one study that utilised an internet-based, desk-research approach to language policy in China (Zhang, 2018). Our data therefore strongly suggests that the vast majority of EMI studies are conducted in non-Anglophone settings.

EAP/ESP research, conversely, is frequently located in Anglophone countries such as the United Kingdom and the United States. Strikingly, the largest number of EAP/ESP studies, 117 in total, adopted a desk-based approach, such as analysing the frequency of formulaic language in journal papers, webpages, blogs, textbooks, and corpora. This distribution suggests a strong EAP/ESP emphasis on corpus research. Of EAP/ESP research carried out in non-Anglophone countries, China appears to be an outlier with the highest number of articles at 62.

We can now turn our attention to research question four, in order to examine the convergence and divergence in focus areas of the research aims of EMI and EAP/ESP. Table 5 provides a comparative overview (using keywords), showing where the research interests in EMI and EAP/ESP differed from each other. It is important to note that some papers contain multiple themes across both EMI and EAP/ESP, such as teacher and student perceptions for EMI and linguistic features for EAP/ESP.

Both fields share a common interest in *pedagogical strategies* in their respective locations (content classrooms vs. EAP/ESP classrooms) with EMI research particularly focused on effective content delivery in English and translanguaging/L1 use. In contrast, the EAP/ESP field rarely touches on this theme, with only one study examining it in the context of digital multimodal composing.

Language policy is a research theme more actively explored in EMI, focusing on plurilingual policies, post-colonial education policies, and language policy in higher education. In contrast, only two studies in EAP/ESP research address these issues.

Content learning outcomes were a unique theme of EMI research, where learning outcomes involve gains in content knowledge. EMI research quantifies academic success through GPAs and final grades. EAP/ESP research that measures academic achievement often does so in the context of EAP/ESP itself, again suggesting an area of divergence between the two fields.

In terms of research on *linguistic features*, there are distinct differences between EMI and EAP/ESP. EMI research typically focuses on general English proficiency, whereas EAP/ESP investigates specific patterns and deviations in language use. Furthermore, while EMI research has not to date seemed to explore *doctoral thesis*, EAP/ESP shows a strong interest in the structural and rhetorical aspects of doctoral writing, including move analysis and text analysis. This appears to identify another difference: EMI research focuses much more at the undergraduate level.

Regarding *discourse and genre analysis*, the focus of EMI is largely limited to classroom discourse. In contrast, EAP/ESP extends its examination to academic and research genres, exploring metaphors and persuasive strategies in academic communication divorced from the student learning environment.

Corpus analysis and text analysis are other key areas prominent in EAP/ESP research, with numerous studies adopting these methods to examine vocabulary use, as exemplified by the vocabulary profiling of business letters. No such focus is found in EMI publications.

EAP/ESP also places a strong emphasis on *academic vocabulary*, exploring its use and acquisition across various academic discourse settings—from student essays to TED talks and textbooks. In EMI, vocabulary appears to be merely one of the variables to measure language proficiency.

Lastly, *assessment* differed between EMI and EAP/ESP. In EAP/ESP, there is a focused interest in dynamic assessment, academic literacy, washback, and language testing, indicating an established approach to assessing academic language proficiency. In contrast, EMI research often operationalises assessment in terms of language test scores, such as those from IELTS.

Thus, while both EMI and EAP/ESP settings focus on the English language in some form or another, EMI research emphasises pedagogical strategies, broad educational outcomes, and the role of language policy in educational settings. EAP/ESP is distinguished by its focus on linguistic features, genre-specific discourse, and corpus-based studies in academic and professional settings.

TABLE 5 Comparison of key areas of interest in English medium instruction and English for academic purposes/English for specific purposes research.

	Research themes	EMI Keywords	EMI frequency	EAP/ESP keywords	EAP/ESP frequency
1	Pedagogical strategies	Translanguaging in lessons; collaborative learning; language scaffolding	10.1% (n = 21)	Translanguaging; digital multimodal composing; genre-oriented instruction; strategies to teach EAP reading	0.8% (n = 4)
2	Language policy and attitudes	Mandatory versus optional CLIL; plurilingual approaches in policy; Language policy in HE	8.7% (n = 18)	English language policies; research articles; EMI policy	0.4% (n = 2)
3	Language proficiency	Academic writing and listening proficiency; IELTS; English proficiency	13.9% (n = 29)	Lexical gain; perceived learning gain; genre-based writing skills	1.2% (n = 6)
4	Content learning outcomes	Content learning; GPA; final grades	13.0% (n = 27)	Academic achievement	0.8% (n = 4)
5	Classroom interaction	Communication patterns; student-initiated questions in interactions	10.6% (n = 22)	Interactional patterns in defence discourse; peer interaction	2.0% (n = 10)
7	Discourse and genre analysis	Classroom discourse; discourse intensive scientific practices	1.9% (n = 4)	Discourse, genre, you-mentions; argument genre; comparative analysis	15.0% (n = 72)
8	Linguistic features	Improvement in lexis; grammar; pronunciation	1.4% (n = 3)	Linguistic features; prepositions, lexical bundles; error analysis	7.1% (n = 34)
9	Corpus analysis and text analysis	Corpus of student-to-teacher interaction	0.9% (n = 2)	Corpus tools; error types; uptake	46.3% (n = 222)
10	Doctoral thesis	-	-	Doctoral thesis; academic writing; needs analysis; activity theory	6.1% (n = 29)
11	Teacher and student perceptions	Teachers' beliefs about translanguaging; students' program evaluations; motivations, self-regulated learning strategies	35.6% (n = 74)	Lecturer accents; perception; comprehension; effective delivery; strategy	10.2% (n = 49)
12	Curriculum and academic materials	Curriculum for the EMI programmes	0.7% (n = 1)	Curriculum; EAP materials; selection and development of materials; material assessment	2.1% (n = 10)
13	Teacher training and professional development	EMI-specific pedagogical training; continuous professional development models	6.7% (n = 14)	ESP teacher identity; teaching competencies; peer observation	3.0% (n = 13)
14	Academic vocabulary	Vocabulary through CLIL; student vocabulary gains	2.4% (n = 5)	Academic vocabulary; EAP materials; AVL; BAWE; frequency analysis	6.4% (n = 31)
15	Assessment	Language assessment tools; assessment of literacy in CLIL	3.0% (n = 4)	Language assessment; dynamic assessment	3.8% (n = 19)

To summarise, EAP/ESP research typically focuses on academic writing, linguistic features analysis, and genre pedagogy, aligning with its focus on language use in academic settings. EMI research often addresses broader educational issues, including bilingual education programs, language policy debates, internationalisation, and teacher training. EMI research places strong emphasis on bilingual education, language policy in multilingual societies, and bilingual language policy, especially in contexts such as Spain, Hong Kong, and South Africa, reflecting the role of EMI in managing multiple languages within educational settings.

4 | DISCUSSION

Björkman (2011) argued more than a decade ago that the constituents of EAP—the students—were rapidly shifting from those studying academic subjects in Anglophone countries to those studying their subjects in non-Anglophone settings for whom English was a lingua franca, using it, moreover, to communicate with speakers ‘from other first language backgrounds’ (p. 79). Björkman concluded that this shift had major implications for EAP researchers in terms of their research focus. The findings from our review do not suggest that this shift has taken place in any recognisable form. Our results do not show, for example, an interest by EAP/ESP researchers/authors in how EMI students are adapting to changes, if there are any, in the content teacher’s spoken discourse. We find, indeed, that there is little direct interest in EAP/ESP research regarding what actually goes on in the EMI classroom or lecture theatre because of EAP/ESP’s heavy bias towards standard language and corpus methods. We therefore wonder how it is possible to support students who may be struggling with EMI spoken classroom discourse where there may be switches from discipline-specific academic genre to general academic language and then even to everyday spoken language (Macaro, 2020). Underscoring all these issues may be questions of comprehensibility and intelligibility in spoken discourse. As we briefly documented in our introduction, a number of EMI publications have discovered a lack of support for EMI students. There is an assumption therefore that this support should come from English language specialists operating in the same institution as EMI teachers and students. That support may well exist in some cases but it is rarely *directly* documented in the EAP/ESP literature that we have surveyed. It would be advantageous to the two related research communities if this support was more directly documented. Additionally, greater interaction between the two research communities could greatly enhance the identification of the precise needs of students and how these might be addressed as well as the pedagogical implications for EMI teachers.

According to our review of research themes, EAP/ESP is primarily concerned with the English of the disciplines. Therefore, not surprisingly, it rarely differentiates between students whose L1 is English and those for whom English is an L2. Whilst there may be a reasonable assumption that all students (regardless of their L1) need support with academic genre, no obvious differentiation seems to be taking place regarding how, for example, having experienced academic language and genre in the L1 in previous phases of education may impact on understanding and using it in HE through English. We should again note that by far the largest number of EAP/ESP studies focused on corpus analysis and text analysis—that is, written English language, a discourse often written or used by experts in their particular workplace field or academic discipline. In other words, this is presented to students as a goal to reach and a practice to emulate. It is the desired *end product*.

By contrast, EMI research includes a considerable focus on the *process of learning* content through an L2 and on how that process develops through the educational trajectory. We have seen that a great deal of interest in the EMI literature is on actual content classroom practices—particularly interactional practices such as teacher questioning. This is not surprising as the use of questioning as a pedagogical technique for making progress in L2 learning goes way back beyond the EMI international boom, both in general pedagogic literature (Mortimer & Scott, 2003) and in L2 acquisition literature (Eckerth, 2009). The use of the L1 (or translanguaging or code-switching) also has its roots in second-language learning research and is subject to a great deal of argument and counter-argument (Macaro, 2022). EMI researchers therefore appear to have traced a line of development which has strong roots in second-language learning research and in general pedagogy. EAP/ESP researchers draw more on theories about the nature of language

itself, often rooted in Anglophone contexts, and how it is specific to the field in which it is being used. Linked to this divergence is our evidence that EMI-labelled publications are invariably the result of research in non-Anglophone countries. This is not the case with EAP/ESP research.

Similarly, EMI research has taken a keen interest in the perceptions and beliefs of both EMI teachers and students. This has not been limited to their perception of how efficacious EMI is (or is becoming) as a method of instruction, but also to the wider impact of introducing and developing EMI. Moreover, stakeholder perceptions are frequently related in the research to questions of policy implementation and what drives the increase in the EMI offer and in the way that it is being offered.

So, Wingate (2022) is quite right to ask whether the academic fields of EMI and EAP/ESP are 'two sides of the same coin' (p. 1). The findings from our review of research questions would suggest that the answer is 'yes, but only in part'. If 'the coin' is referring to EMI students involved in the process of learning an academic subject through what has become the major international language of research, then yes, because they do need access to the theories and databases documented by EAP/ESP researchers. Their need is as important as for those students studying academic subjects in Anglophone countries regardless of their L1. However, over a decade of EMI research suggests quite powerfully that these students have *additional* needs including support with both content explanations and with the linguistic competence to better ensure those outcomes. So, we would disagree with Wingate (2022) when she refers to 'the mistaken assumption that students' struggles are mainly or only caused by language deficiencies' (p. 10). As Hyland and Jiang (2021a, p. 2) elegantly put it with regard to EAP research: '*this drive to uncover the constraints of academic contexts on language use may have come to overshadow a concern for the ways learners can be helped to gain control over these constraints*'.

The research presented in this paper would lend support to the argument made by Galloway and Rose (2022) that EMI and EAP/ESP can continue to be considered separate areas of academic inquiry according to the research questions being investigated. In other words, where there is a case for collaboration between EMI and EAP/ESP researchers/practitioners the two areas of inquiry should develop a symbiotic relationship, activated by a need to understand better the extent to which difficulties are being encountered due to the nature of the EMI environment itself or more specifically by the linguistic requirements of a particular discipline. On the other hand, EMI research needs to continue to cast its spotlight beyond this to: (1) more general pedagogical strategies needed when learning content through an L2, (2) the socio-cultural impact of replacing the home language with English as a medium of instruction, and (3) to EMI student outcomes which are not restricted to exam results or the quality of academic writing produced by those students. These research aims will not be furthered by denying the differentiation between students learning biology or architecture through the medium of English in, say, Bangladesh (see Hamid et al., 2013), and those students learning those subjects in the United States.

As in all research our current study had limitations—particularly limitations of scale. For example, the total number of publications from which we identified research questions/themes included more EAP/ESP papers than EMI papers. However, that limitation reflects the fact that EMI is still emerging as a research topic and has not until recently had a specific journal dedicated to it, unlike EAP/ESP. In terms of the methodology we adopted, it could be argued that a limitation was that we did not systematically review every single available publication through some kind of electronic search process. In that sense we have not made a claim that it is a systematic review, instead referring to it as a 'scoping review'. However, we would counter that argument by suggesting that using nouns as a source of identifying research aims (see Hyland & Jiang, 2021b) may be appropriate for very large datasets and for providing a general overview, but in order to really dig deep into actual research aims and research questions a different approach is needed. We would propose that the approach adopted in this review allowed us to pinpoint more accurately the precise focus of research papers albeit in a more limited number.

We end on a note of caution. Throughout this paper we, and others (see Introduction), have alluded to the need for greater collaboration and cross-fertilization between the EMI and EAP/ESP research fields. Some of that research might be carried out by EMI EAP/ESP teachers themselves. Whilst there are undoubted benefits in developing collaboration between all the participants involved in delivering an EMI subject, we have to be realistic about what is possible given the workload constraints of two such groups of teacher-researchers. EMI teachers in particular, in the various

disciplines, are expected to produce high-quality research in their own specific fields. Asking them to additionally carry out and publish research in their own subject pedagogy may be a step too far *unless and until* that research, and that collaboration more generally, is given adequate value by university administrators when making decisions about tenure and promotion.

CONFLICT OF INTEREST STATEMENT

There are no conflicts of interest.

DATA AVAILABILITY STATEMENT

There is no shared data.

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PEER REVIEW

The peer review history for this article is available at <https://publons.com/publon/10.1111/ijal.12563>

ENDNOTE

¹We refer in this article to 'content teachers' to describe those teachers teaching disciplinary subjects other than English—such as physics, engineering, and politics.

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How to cite this article: Macaro, E., & Aizawa, I. (2024). English medium instruction, EAP/ESP: Exploring overlap and divergences in research aims. *International Journal of Applied Linguistics*, 34, 1352–1367. <https://doi.org/10.1111/ijal.12563>