

CONTEMPORARY MATTER: UPDATING OUR UNDERSTANDING OF ENGLISH FOR MEDICAL PURPOSES

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Abstract. *There is a growing interest in learning and teaching English for Specific Purposes (ESP) at tertiary level in countries where English is not the primary language. Due to globalization, there has been a shift from learning and teaching English for General Purposes (EGP) to ESP in universities worldwide, and English for Medical Purposes (EMP), a notable subset of ESP, is no exception. This narrative review aims to contribute to understanding the evolving landscape of EMP development and teaching by highlighting aspects of EMP that warrant revisitation. Through a focused approach, the concept of EMP is investigated first and we argue that it is essential to clarify the applied terms, proposing 'English for Health Sciences Purposes' (EHSP) for multiple healthcare disciplines and reserving 'English for Medical Purposes' (EMP) specifically for medical students and physicians. In addressing the second research question, this paper emphasizes the importance of learning EMP by highlighting its distinct target audience and emphasizing that EMP is purpose-driven, content-based, and tailored to medical contexts, offering learners a competitive edge. The review also underscores the need for new types of needs analyses. In answering the third research question, it has been found that EMP teachers often lack formal medical training but are required to teach specialized content. Despite recent EU initiatives offering professional development for Languages for Specific Purposes teachers, EMP instructors must continually self-educate. Their role requires adaptability, flexibility, and modern teaching skills, as they act more as facilitators and collaborators than traditional language instructors. Hopefully, the findings of upcoming empirical studies will help develop student-centered approaches to EMP and may lead to a supportive environment for the effective teaching of this specialized field.*

Key words: *English for Medical Purposes, English for Specific Purposes, learning and teaching English for Medical Purposes, EMP teachers*

1. INTRODUCTION

In non-Anglophone countries, where English is not the first or official language, universities are increasingly shifting from teaching and learning English for General Purposes (EGP) (i.e., English as a Foreign Language) to teaching and learning English

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for Specific Purposes¹ (ESP) (Dou et al. 2023; Hyland and Wong 2019). The emergence of ESP is undoubtedly due to the fact that English has become a global phenomenon, dominating communication in numerous fields (Dyvik 2023; Galloway and Rose 2015). This trend is particularly visible in fields such as business, engineering, law, and medicine, where specific professional language use is essential (Rahman 2015). Moreover, English has unquestionably become the international language of science and technology (Di Bitetti and Ferreras 2017; Larsen-Pusey and Pusey 1987; Pavel 2014; Rose 2018). It is widely accepted that the ability to communicate in English has become an integral part of being and becoming a scientist (Mičić 2013). Especially in medicine, as Heming and Nandagopal (2012, 485) argue, ‘English is the *de facto* language of international medicine’; and a good command of English is required to obtain essential medical and scientific information (Džuganová 2019).

This brings us to the focus point of this literature review: teaching and learning English for Medical Purposes (EMP)². In light of the growing interest in EMP, it has become timely to conduct a focused narrative literature review to revisit the definition and concept of EMP, identify the main stakeholders (medical students and EMP teachers), and highlight new areas where further research is needed. The relevance of this literature review lies in addressing aspects of EMP that have received little discussion so far. Its limitation is that due to the interdisciplinary and multidisciplinary nature of the field – situated at the interface between applied linguistics, psychology of language learning, higher education, and adult language learning – the search and mapping of the literature were challenging, inevitably leaving the review far from being comprehensive.

EMP is primarily investigated within the realms of linguistics and applied linguistics, but this narrative literature review focuses on some of the pedagogical aspects of teaching and learning EMP that have received less attention in research. Thus, it aims to address the following research questions:

RQ1 How is EMP conceptually defined? (Chapter 3)

RQ2 What factors underline the importance of learning EMP? (Chapter 4)

RQ3 Who are the teachers of EMP? (Chapter 5)

This literature review follows a thematic structure to answer the above research questions. It starts with the description of our strategy for reviewing the literature. It is followed by an attempt to clarify what EMP is, providing an overview of the various terms used in defining this segment of specific language use, accompanied by our own elucidation and definition of EMP. We then justify why EMP should be taught at medical schools, and how this approach is supported by relevant scholarly sources. A section in this chapter is devoted to intriguing questions related to EMP teachers. Since the relevance and need for teaching EMP at medical schools are often justified by needs analyses, the subsequent section discusses needs analyses in the field of EMP and the lessons learned from them. In the conclusion, we outline the areas where further research is needed to gain a deeper understanding of this specialized field.

¹ English for Specific Purposes has been defined as ‘the branch of English language studies that concerns the language, discourse, and culture of English-language professional communities and specialized groups, as well as the learning and teaching of this object from a didactic perspective’ (Sarré and Whyte 2016, 150).

² For a historical trends and the evolution of EMP through publications see Shomoossi et al. (2019).

2. METHODS AND DATA ANALYSIS

This chapter outlines the methodology used to search and select relevant literature for this focused narrative review of the literature on EMP. The aim was to review studies related to our research questions concerning EMP. First, we identified key databases, set criteria for inclusion and exclusion, and selected keywords to guide the search process.

We used academic databases, academic networking sites, and academic publishers' searchable sites (see Table 1) to ensure adequate coverage of the subject matter.

Table 1 Databases used for reviewing the literature on English for Medical Purposes

Academic Databases	Academic Networking	Academic Publishers
Clarivate/Web of Science Dissertations and Theses Global EBSCO ERIC Google Scholar JSTOR ProQuest Central ScienceDirect Scopus Taylor & Francis Online Wiley Online Library	Academia ResearchGate	Cambridge University Press De Gruyter John Benjamins Oxford Handbooks Online Oxford Research Encyclopedias

The search process involved several steps. Initial searches were conducted in the databases using search terms such as “English for Medical Purposes”; “English for Doctors”; “Medical English”; “needs analysis” AND (“English for Medical Purposes” OR “English for Doctors” OR “Medical English”), and, in addition “English for Specific Purposes [ESP] teachers” OR “Languages for Specific Purposes [LSP] teachers”. Titles and abstracts were screened to assess their relevance to our research questions. Irrelevant studies were excluded at this stage. The selected articles were reviewed in full to determine their suitability based on the inclusion criteria (see Table 2), which were set to identify reliable sources, peer-reviewed articles, books, and theses that provided empirical data, theoretical insights, or comprehensive reviews related to the research questions.

Table 2 Inclusion and exclusion criteria applied for reviewing the literature on English for Medical Purposes

Inclusion criteria	Exclusion criteria
1) Address any of the identified key areas related to the research questions 2) Deal with ESP or LSP as long as the source in question contain relevant particular information on EMP and the teachers of EMP 3) Accessible through the selected databases or the library of affiliated University	1) Purely linguistic in nature 2) Not peer-reviewed 3) Do not provide information relevant to answering the research questions 4) Published before 2000 unless considered seminal and frequently cited in recent literature

Due to the complexity of the subject matter, we proceeded and processed the literature primarily by backward snowballing, a technique involving the identification of additional studies by reviewing the references of the already selected articles. This method is

particularly effective for discovering seminal works that might not be captured through initial database searches alone, especially in the field of teaching and learning EMP.

To ensure the use of up-to-date literature, we focused on articles published after 2000. This timeframe was chosen to capture contemporary trends and developments in the field, especially considering the significant changes over the past two decades. However, the timeline for our literature review begins with 1986 because this year saw the publication of Maher's (1986) frequently cited definition of EMP (see Chapter 3).

3. WHAT IS 'ENGLISH FOR MEDICAL PURPOSES'?

Findings from this literature review confirm that, depending on which aspect is emphasized, various terms are used to describe the 'international language of medicine'. In addition to EMP, less frequently used terms include 'Medical English' (Baethge 2008) and 'Medical English as lingua franca' (MELF) (Tweedie and Johnson 2022), where the main emphasis is on English as the common language among healthcare professionals from different linguistic backgrounds. The most frequently used term, however, is EMP. A well-known and frequently cited definition of EMP was provided by Maher (1986):

the term 'English for Medical Purposes' (EMP) refers to the teaching of English for doctors, nurses, and other personnel in the medical professions... In general terms, EMP (a) is designed to meet the specific English language needs of the medical learner (e.g., nurse, GP, dentist, etc.); (b) focuses on themes and topics specific to the medical field; (c) focuses on a restricted range of skills which may be required by the medical learner (e.g., for writing a medical paper, preparing a talk for a medical meeting, etc.)

However, we found that the use of the term EMP (and its shortened version: English for Medicine) is not consistent throughout the literature. Some surveys include only physicians or medical students as learners of EMP, while other surveys involve nurses, nursing students, and sometimes other health professionals (HPs) as well (see needs analyses in Chapter 4.2). This inconsistency arises from the broad, general interpretation of the word 'medicine' in English, referring to any branch of medical science. In Figure 1, an asterisk indicates the problematic term, sometimes involving exclusively physicians or to-be physicians, and sometimes other representatives or students of other health professions.

When applying the occupation-based classification, the name of the subspecialty which is teaching the specific English language to medical students and physicians is clearer: 'English for Doctors'. The duplicity of the terms as exhibited in Figure 1 results from two ways of classifying ESP in the field of Health Sciences (HS), depending on whether the classification is based on discipline or occupation. In the middle of Figure 1, 'English for Academic Purposes' (EAP) and 'English for Research Publication Purposes' (ERPP) (the latter introduced by Flowerdew and Habibie 2021) are inserted to create intersections with each subspecialty since these are essential for all HPs pursuing academic work.

We argue that it is necessary to clarify the terms we use since the subspecialties seen in Figure 1 have started to distinguish themselves from other subspecialties (e.g., teaching English for Dentistry is largely different from teaching English for Physiotherapy). For clarity, we suggest using the term 'English for Health Sciences Purposes' (EHSP) or 'English for Healthcare Professionals' when multiple disciplines of HS are involved, and reserving EMP for when the learners are medical students or physicians. In this paper, 'EMP' will refer specifically to 'English for (Medical) Doctors'.

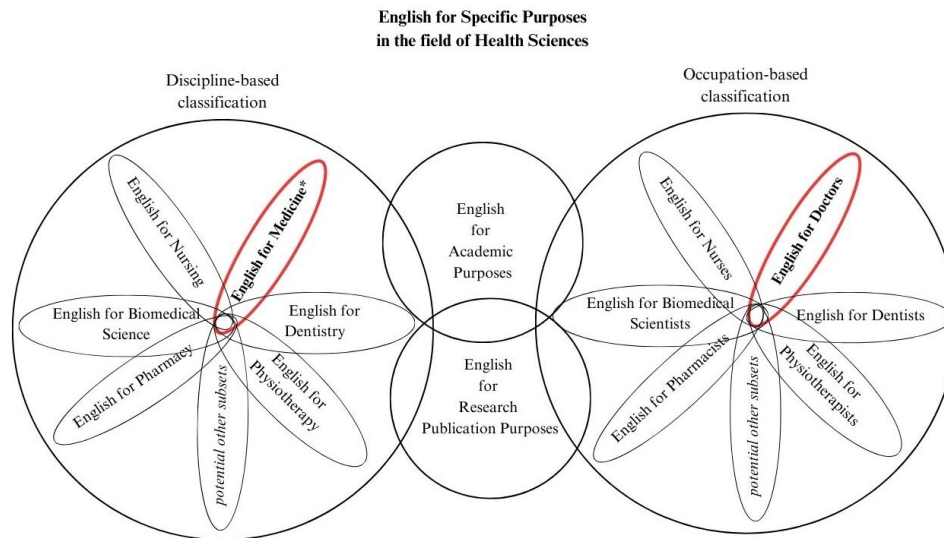


Fig. 1 Classification of English for Specific Purposes in the fields of Health Sciences based on discipline and occupation

From our research conducted among medical students and LSP teachers (work in progress)³, and from our teaching experience, we know that even if certain elements of the terminology of EHSP are the same (e.g., taking patient history, talking to patients, general anatomy and physiology terms), there are notable differences in the language use of these disciplines across various dimensions: (1) technical⁴ vocabulary: although dentists, pharmacists, physiotherapists, nurses, and other allied HPs share some of the terminology (jargon), their essential vocabulary sets are largely different; (2) needs and expectations: the learners' goals in developing their English language skills for their prospective careers may vary considerably (e.g., to read literature, publish, give presentations, or work abroad); (3) level of English proficiency of learners (although it has to be noted that EMP learners are rarely beginners).

EMP must also be distinguished from Content and Language Integrated Learning (CLIL) and English-Medium Instruction (EMI). Our findings indicate that these terms define particular methods of delivering specific knowledge of English and the settings in which they are taught. The targeted learners, content material, and the focus of imparting knowledge differ. Table A1 in the Appendix⁵ clarifies these terms and their relation to EMP.

In this literature review, our definition of EMP (from a pedagogical viewpoint) is as follows:

³ In spring 2024, we conducted a questionnaire-based study among medical students in which we aimed to explore their motivation in learning EMP. We adopted Dörnyei's questionnaire (in Taguchi, Magid, and Papi 2009), which was based on Dörnyei's motivation theory (Dörnyei 2005, 2009) and adapted it to the EMP learning environment. Data analysis is in progress.

⁴ By 'technical' we mean 'a word or phrase used in a specialized field to refer to objects or concepts that are particular to that field and for which there are no adequate terms in ordinary language. See also: jargon.' <https://dictionary.apa.org/technical-term>

⁵ Appendix

EMP (or ‘English for Medical Doctors’) is considered a branch of English for Specific Purposes. EMP, the specific language of medicine, is typically taught by native or non-native English language teachers to non-native medical students in medical schools (mainly in non-Anglophone countries) as an integral or complementary part of their medical education. Additionally, EMP is taught to content/subject teachers (medical educators) who teach medical (content) subjects to ‘international’ medical students in programs where English is the medium of instruction. EMP is also taught to practicing medical doctors and/or researchers who need to improve their academic English to publish and present in English⁶.

4. WHAT FACTORS UNDERLINE THE IMPORTANCE OF LEARNING AND TEACHING ENGLISH FOR MEDICAL PURPOSES?

4.1. Why English for Medical Purposes and not English for General Purposes?

To capture the specific nature of EMP and argue for its relevance and necessity, it is important to examine to what extent the teaching and content of EMP differ from teaching English for General Purposes (EGP) either as English as a Foreign Language (EFL) or English as a Second Language (ESL)⁷. Based on our findings in the literature, teaching EMP is distinctively different in several ways, many of which relate to the learners of EMP as listed below. In today’s increasingly student-centered education, it is natural that the answer lies in the learners’ interest:

(1) Target audience and context. EMP is taught at medical schools, at the tertiary level. The learners (medical students, practicing physicians, or researchers) will undoubtedly need English for their studies and throughout their career. They are expected to read and write articles in English, present at conferences, and communicate with patients and professionals alike (Sarré and Whyte 2016). In our view, similar to studying Latin, EMP courses should be made available (if not compulsory) for non-native medical students at medical schools in non-Anglophone countries, as this would effectively aid their studies, professional development and career advancement.

(2) Learner profile. EMP learners are considered adults, as they are over 18 years of age. It is known that adult language learners generally ‘take a more proactive role and use a variety of resources to promote their language learning’ (Papi and Hiver 2020, 228).

(3) Purpose-driven learning. EMP is learnt for a specific purpose. It means it serves as a tool in the hands of its users (Dudley-Evans and St John 1998, 4–5). Maher’s (1986) definition also emphasizes the ‘instrument-like’ (instrumental) nature of EMP. When a language is learnt for a specific occupational or professional purpose, it inevitably changes the motivation to learn that language (Pavel 2020). Therefore, exploring medical students’ motivation to learn EMP would be a significant step forward in EMP research and practice.

(4) Competitive advantage. Nowadays, English must be separated from other languages in the sense that it has become a basic educational skill (Dörnyei and Ushioda 2011, 72). According to Graddol (2006, 15), this also means that no competitive advantage can be gained

⁶ Since medicine is a discipline that goes hand in hand with the pressure and need for publishing in English (‘Publish or Perish’ phenomenon), practicing physicians and researchers working in this field often express their need for courses or further training in English for Research Publication Purposes (ERPP).

⁷ ESL is taught in countries where English is the dominant or official language, while EFL learners are in non-English-speaking countries.

by the mastery of English. This may be true for general English, but not for ESP, especially in the field of science and academic publishing. Meta-research conducted by Amano et al. (2023) has found that non-native English speakers spend more time, money, and effort than native English speakers to have their papers published. It means that medical students who invest energy and time in learning EMP gain a competitive advantage: they will have a higher chance of succeeding. Their knowledge of EMP will help them during their university years and after.

(5) Content-based teaching. Teaching EMP is usually content-based, relying on authentic materials from the medical context (e.g., authentic doctor–patient dialogues, patient information leaflets, and discharge summaries). However, there are approaches to make it more context-based (Wiertlewska 2019), and we agree that EMP can and should be taught as a subject complementing medical content subjects. In this approach, the EMP teacher acts as a facilitator, mentor, or language assistant collaborating closely with content teachers (medical educators) to assist or support the teaching process of medical content subjects (transdisciplinary didactic approach). Such collaboration requires cooperation among content teachers, EMP teachers, and students. Antić (2016) suggests a similar setup, highlighting that in ESP, language teaching and content knowledge are integrated, which is a motivating combination for students. Flowerdew and Peacock (2001) also call for cooperation between subject specialists (content teachers) and English teachers. According to Barron (1992, as cited in Flowerdew and Peacock 2001), collaboration can be achieved in at least two ways. In the first method, content teachers provide insights into their teaching material, and the EMP teacher builds the EMP material around the discipline-related course content. In the second scenario, the content teacher participates as a consultant in some language classes recommending topics and/or projects, commenting on discipline-related subject matter, and helping run discussions.

4.2. What do needs analyses teach us?

Researchers in the field generally agree that teaching any language for specific purposes should be based on needs analyses (Bui 2022; Bui and Huong 2023; Sarré and Whyte 2016). According to Rahman (2015), Mubaraq (2017), and Wette (2018), specialized language courses differ from general language courses in that they assess the needs of language users and specifically address these needs. Table A.2 in the Appendix⁸ summarizes the main findings of some of the numerous needs analyses conducted in several countries around the world.

Needs analyses have been crucial in the development of teaching EMP and researching into EMP. Their findings refer to the given country or university context, which vary in the evolution of the necessity of teaching EMP. Thus, these findings are not necessarily universally applicable; however, there are some lessons to learn, and there are some new avenues of research to open:

(1) Role in early stages. Needs analyses among students or practicing professionals play an important role at an early stage when these can effectively help in the creation of course and curriculum design. In Europe (in the European Higher Education Area; EHEA), the days of traditional needs analyses in terms of EMP are over. Needs should be assessed from other perspectives and other questions need to be raised: What methods do students prefer to learn EMP? What language learning strategies do they use when learning EMP? What motivates them in their learning process?

⁸ Appendix

(2) Awareness and motivation. Medical students seem to be aware of the importance of learning EMP; although their motivation may differ. This has also been confirmed by our findings in a pilot study we conducted at our University⁹. Nevertheless, the basic need in terms of EMP has been clearly established: EMP must be learnt. If EMP must be learnt, it must be taught. Therefore, one may argue that EMP should be introduced into the medical curriculum similar to how Latin is already included in the curriculum in many medical schools.

(3) Professional needs. Needs analyses should be conducted among trained medical professionals as well to determine what EMP knowledge and skills they need in their career. Their use of EMP and EAP (in specific situations and genres) indicates clearly the EMP knowledge base and English language skills that EMP students will need later during their career. These surveys should be performed on an ongoing basis, as needs continuously change in the rapidly evolving medical field. Thus, the EMP curriculum/course material can be kept up-to-date, and the necessary skills can be developed, tailored to the real, actual needs.

(4) Teachers' needs. Needs analyses should also be conducted among EMP teachers. They repeatedly voice their need for professional and vocational training (Bajzát 2020). The question is whether there are sufficient opportunities for them to learn and exchange ideas. Fortunately, recent initiatives within the EHEA have surveyed and addressed the needs of LSP teachers in higher education (Chateaufreynaud and John 2022) (see Chapter 5).

5. WHO ARE THE TEACHERS OF ENGLISH FOR MEDICAL PURPOSES?

Medical practitioners, educators, and researchers need English throughout their careers. If we accept the fact that English has become a basic skill for medical professionals, the same way as learning English is increasingly becoming a self-evident, 'natural' part of education (Al-Hoorie 2017, 7), it is reasonable to argue that EMP should be taught at medical schools. This is consistent with our findings in literature: the need for specialized language education is probably greater than ever before (Breeze 2020). In many countries, this is indeed the case, which brings us to a very important question in connection with the EMP teacher: who should teach EMP?

Due to the scarcity of literature specifically related to EMP teachers, our search was extended to include search terms like "ESP teachers" and "LSP teachers". We found that EMP teachers, like most ESP/LSP teachers (Sarré and Whyte 2016), are native or non-native, qualified English language teachers, who possess the necessary language and pedagogical knowledge, but often lack formal education or training in the discipline or field of specialty the 'technical language' of which they teach (Bajzát 2020¹⁰; Pavel 2014; Sarré and Whyte 2016). It is understandable, particularly in the field of medicine, as a language teacher interested in teaching EMP is unlikely to pursue a degree in Medicine. Conversely, trained medical practitioners are highly unlikely to engage in teaching EMP.

⁹ We conducted a pilot study in November 2022 involving medical students at a Hungarian university. A questionnaire, which was based on Dörnyei's motivation theory (Dörnyei 2005, 2009) was answered by 161 medical students. This pilot study has been followed by a nation-wide survey involving medical students of all four medical schools in Hungary (data analysis is in progress).

¹⁰ In a survey, conducted by Bajzát (2020), it has been found that the responding ESP teachers (from Romania, the Netherlands, Japan and Germany) felt that obtaining a PhD degree was more important for them than obtaining a discipline-related degree to do their job.

On extending our search, we found two recent EU projects that are important milestones in LSP teachers' research. These projects contribute to filling the gaps and overcoming the shortcomings previously experienced in the field of effective training and professional development for LSP teachers:

- (1) TRAILS project¹¹ is an Erasmus+ R&D initiative which focuses on enhancing the teaching of Languages for Specific Purposes. The project involved universities and research institutions from Spain, France, Slovenia, Poland, Italy, Germany, the United Kingdom, and Croatia. They conducted a complex needs analysis among LSP teachers to identify the required competences of LSP teachers and develop a training program for them. Based on their findings, they organized a pilot winter school for LSP teachers (Chateaufreynaud and John 2022).
- (2) CATAPULT (Computer Assisted Training And Platforms to Upskill LSP Teachers) project¹² is another Erasmus+ initiative aimed at providing professional development and training tools for LSP teachers in adult and higher education. It provides LSP teachers with the necessary skills to teach in the digital era (Sarré, Skarli, and Turula 2021). The project has developed a common competence framework that outlines the key competences required for LSP teaching.

Consistent with our personal experiences in teaching EMP, the literature review confirmed that the work of EMP (and generally, ESP/LSP) teachers is highly complex (Basturkmen 2012; Ding and Bruce 2017). Beyond traditional language teaching roles, they often develop materials, design courses, and curricula (Cao et al. 2022; Csongor, Németh, and Hild 2019; Kaščáková 2016; Saidi and Afshari 2021); moreover, in order to accomplish these goals, they frequently conduct research and needs analyses (Belcher 2006). EMP teachers frequently address issues such as intercultural competencies (Lu and Corbett 2012), soft/transversal skills, political correctness, and the characteristics of written scientific English (hedging, structuring, etc.) within the context of their EMP classes. Douglas (2017) notes that ESP instructors help the learners connect with their chosen domain and integrate into the specific professional, academic, and vocational culture (discourse community). This integration requires continuous self-education on the specific content of their chosen specialty (Božić Lenard and Lenard 2018). There is an extensive amount of background knowledge that EMP teachers need to acquire about the specialty (medicine), the language of which they teach. This is largely accomplished by self-teaching because there are very few training opportunities for EMP teachers (Cao et al. 2022; Chateaufreynaud and John 2022). Participation in further training and ESP-related conferences are frequently mentioned by ESP teachers as the most important ways of professional development (Bajzát 2020). Douglas (2017) encourages ESP teachers to look at other ESP domains and contexts for inspiration and insight. The TRAILS project highlighted the lack of career development prospects for LSP teachers at European universities.

The role of ESP teachers is both challenging and frustrating. They often do not know the content better than their students (Brunello and Brunello 2018; Meristo and López Arias 2020). Inevitably, this unique position impacts their role as teachers: they are no longer the 'overall source of knowledge', but rather should be viewed as language assistants, collaborators, facilitators, mentors, and consultants. Given this complexity, it is reasonable to assume that EMP teachers have a high level of flexibility, adaptability, resilience, and proficiency in 21st century skills. This is undeniably another area that merits further investigation.

¹¹ <https://trails.hypotheses.org/>

¹² <https://catapult-project.eu/overview/>

6. CONCLUSION

The limitation of this literature review lies in the multidimensional nature of the topic; however, with a focused approach, some of the important aspects of EMP have been pointed out. This focused narrative review began by addressing the first research question (RQ1: How is EMP conceptually defined?) and examining the concept of EMP. Consequently, the use of the term ‘EMP’ has been recommended when medical students, practitioners, or researchers are meant to be the learners of EMP. When an umbrella term is needed to include other health professionals such as nurses, dentists, etc., using the term ‘English for Health Sciences Purposes’ would be more demonstrative and accurate.

In answering the second research question (RQ2: What factors underline the importance of learning and teaching English for Medical Purposes?), the critical role and necessity of EMP in medical education has been emphasized by highlighting the competitive advantage which can be gained by mastering EMP during university years. Moreover, mastering EMP has far-reaching implications: if non-native trainees and trained doctors (and, in general, HPs) can communicate fluently in English, a globally shared language, it will positively influence health sciences and, consequently, patient care worldwide. It has also been pointed out that needs analyses should take new turns and should be carried out among EMP teachers. The review’s findings confirm that LSP teachers, in general, lack training and further training opportunities, their work is highly complex, they have to self-teach themselves on the discipline (the subject-matter/content) the language of which they teach, and there are no career development prospects. Although there is a growing body of research on teachers’ identities, there is very little research on EMP teachers’ identities, career development, motivation, training opportunities, and working conditions. Research into the working methods of EMP teachers would also be beneficial to see what their responses are to the recent changes (e.g., remote teaching, appearance of AI).

As it has been highlighted, instead of the traditional needs analyses (i.e., surveying the needs of the students), new questions need to be raised. Nowadays, learners of EMP should be asked about their learning strategies when learning EMP, and surveying their motivation would be another important line of inquiry in the field of EMP research.

On reviewing the important aspects of EMP in the literature, future research directions have been recommended. Hopefully, the findings of upcoming empirical studies will help develop student-centered approaches to EMP and may lead to a supportive environment for the effective teaching of EMP.

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APPENDIX

Table A.1 Various settings of teaching English for Medical Purposes.

	Methods of delivering knowledge		
EMP taught as:	ESP English for Specific Purposes	EMI English-Medium Instruction	CLIL Content and Language Integrated Learning
Definition	“The branch of English language studies that concerns the language, discourse, and culture of English-language professional communities and specialized groups, as well as the learning and teaching of this object from a didactic perspective” (Sarré and Whyte 2016, 146)	“The use of the English language to teach academic subjects (other than English itself) in countries or jurisdictions where the first language of the majority of the population is not English” (Macaro et al. 2018, 37)	“CLIL is an approach in which a foreign language is used as a tool in the learning of a non-language subject in which both language and the subject have a joint role” (Coyle, 2002)
Level	Higher education	Higher education	Primary and secondary education
Typically taught by	Mainly non-native, trained/qualified English language teachers who specialize (by self-teaching) in the field of medicine/health sciences, usually without any formal training in HS	Non-native (or native) university lecturers (medical professionals) with English knowledge between B2–C2 (usually without pedagogical training)	Non-native (or native) teachers who received training in the given subject (e.g., biology, physics) AND in English (usually trained in CLIL)
Learners	1) Non-native (undergraduate) medical students (rarely beginners) 2) Non-native postgraduate medical professionals (rarely beginners) 3) Non-native EMI content teachers teaching in international training programs (Morell 2020)	Non-native (occasionally native) university students at medical schools where the medium of instruction is English (international medical programs) (not beginners)*	Non-native primary and secondary school students in countries where English is not the first language
Purpose	Learning medical (technical and non-technical) vocabulary, written and verbal interprofessional (e.g., between a medical doctor and a nurse) and intraprofessional communication (e.g., doctor–doctor communication, referrals) and doctor–patient communication + English for Academic Purposes (EAP)	Content enjoys priority. Some incidental language learning may take place.	Content and English language are equally taught and assessed.
Typical settings in terms of EMP	EMP (elective or compulsory) courses are offered to medical students at medical schools	EMP is used/needed by non-native university lecturers (typically holding a degree in Medicine) to deliver knowledge on their particular subject to non-native/native students attending English-medium medical education	<i>An intersection where teaching EMP is similar to CLIL: language (EMP) teachers of preparatory courses of (international medical programs) at medical schools are often required to explain content when teaching</i>

	programs of medical schools (international medical programs)	<i>medical terminology and vice versa, content teachers (medical educators) find it sometimes necessary to correct certain language-related mistakes or explain language-related problems</i>
*Our personal experience aligns with literature findings (Bo et al. 2022; Chan et al. 2022): non-native students within the EMI setting may also require EMP training. These ‘international’ students admitted to medical schools where the medium of instruction and communication is English, often have intermediate to proficient general English knowledge. However, they likely received their former education (e.g., biology, chemistry, physics) in their mother tongue. Thus, when they enter English-medium medical education, they are expected to understand a highly complex content in ‘medical English’ the terms of which they are only vaguely familiar with. Naturally, this affects the efficiency of their learning process.		

Table A.2 Needs analyses conducted among learners/users of English for Medical Purposes and their main findings

Author (year of publ.)	Country	Respondents	Most important findings
Tasçi (2007)	Turkey	Medical students	Students were not satisfied with the English knowledge of their language teachers or the available teaching materials.
		Lecturers	Lecturers rated the importance of EMP higher than students.
Hwang (2011)	Taiwan	Medical students	Students suggested: first-year students should take reading classes, second-year students listening classes, and third-year students conversation classes.
Epifani (2016)	Italy	Respondents from all fields of HS	75% of the respondents stated that they needed English in their work
Karimnia and Khodashenas (2018)	Iran	Medical students	1) Students use their English reading skills most frequently. 2) They self-reported the highest level of proficiency in reading.
Lodhi et al. (2018)	Pakistan	Medical doctors working in academia	Large gap between the competencies that the doctors acquired and the language skills they want to achieve.
		Medical students	Strong demand for EMP is detected among the students.
Safiyeh (2021)	Palestine	Medical students	1) Students are most satisfied with their reading skills and least satisfied with writing skills. 2) 58% said that EMP courses are not intensive enough to enable them to speak confidently in communication situations.
		EMP teachers	Four basic skills are equally needed, but the greatest need: developing writing skills.