Ed Process Int J

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ISSN 2147-0901 (Print), 2564-8020 (Online)

EDUCATIONAL PROCESS
INTERNATIONAL JOURNAL

From Theory to Instrument: Developing an L2 Motivational Self System-Inspired Questionnaire

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Research Article

Cite this article: Stötzer, A., Farkas, E., & Bagyura, M. (2025). From Theory to Instrument: Developing an L2 Motivational Self System-Inspired Questionnaire. *Educational Process: International Journal, 16*, e2025252. https://doi.org/10.22521/edupij.2025.16.252

Received April 12, 2025
Accepted May 24, 2025
Published Online June 15, 2025

Keywords: English for medical purposes, language learning motivation, undergraduate medical education, instrument development, component structure

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Abstract

Background/purpose. This study presents the development of a novel questionnaire to assess medical students' motivation to learn English for Medical Purposes (EMP), addressing a gap in existing tools tailored to specific language contexts. Based on Dörnyei's L2 Motivational Self System, the questionnaire uniquely contextualizes its items to address the specific circumstances of medical students.

Materials/methods. Data were collected from 283 medical students (undergraduate, years 1 to 6) studying in programs with Hungarian as a medium of instruction at the four medical schools of Hungary. The reliability of the variables for each dimension was verified by Cronbach's α and McDonald's ω. The Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity confirmed the data's suitability for principal component analysis (PCA), which was conducted to establish the structure of variables for each dimension.

Results. The PCAs demonstrated that the adapted questionnaire has a clear and interpretable component structure. The findings reveal that the respondent medical students are largely intrinsically motivated, driven by constructs such as the Ideal L2 Self and Self-Efficacy.

Conclusion. This research contributes an empirically tested, adaptable instrument for measuring EMP motivation across diverse national contexts and underscores its potential to inform targeted curricular innovations that enhance engagement through authentic, goal-oriented educational practices.

1. Introduction

In an increasingly globalized academic and healthcare environment, the ability to use English for Medical Purposes (EMP) has become an essential component of medical students' professional development. This is particularly relevant in medical education programs where English is not the medium of instruction (non-EMI), yet students are still expected to access international research, engage in cross-border collaboration, and communicate effectively in diverse clinical settings. Understanding student motivation to learn EMP in such contexts is of strategic importance, as it directly influences language learning trajectories, academic performance, and long-term professional engagement. However, the motivational drivers underlying EMP learning in non-EMI contexts remain underexplored. Gaining insight into these key motivational variables is essential for understanding learners' dispositions and designing tailored high-quality EMP instruction. Instructors also need to be aware of these motivational drivers in order to develop pedagogical approaches that are responsive to students' specific learning needs. However, developing context-sensitive tools that can reliably capture students' motivational profiles is necessary to achieve this. This study presents the development of a novel questionnaire designed to capture medical students' motivation to learn EMP in non-EMI contexts, with particular attention to the key motivational variables identified within the L2 Motivational Self System (L2MSS).

In today's globalized world, with English becoming a lingua franca and its role in academic discourse increasing (Dörnyei & Ushioda, 2011), universities are shifting their focus from teaching English for General Purposes (EGP) to English for Specific Purposes (ESP) (Breeze, 2020; Hyland, 2022). Learning English is increasingly becoming a self-evident, natural part of education (Al-Hoorie, 2017). So much so that Graddol (2006) points out that the mastery of English can gain no competitive advantage, while this may hold true for EGP, it does not necessarily apply to ESP, including EMP. EMP is a specialized branch of ESP that focuses on developing the language skills required by healthcare professionals and students to communicate effectively in medical settings. This includes mastering medical terminology, understanding professional discourse, and applying these skills in patient care, medical education, and research. The use of the term EMP is not consistent in the literature. This inconsistency arises from the broad, general interpretation of the word medicine in English, referring to any branch of medical science. Therefore, depending on the author's view, in some of the studies, learners of EMP involve medical students only, while in other studies, students of other health professions (dentistry, physiotherapy, nursing) are included as well (Stötzer & Farkas, 2024).

As Amano et al. (2023) highlight, science can be costly for non-native English-speaking scholars who face significant challenges due to language barriers. Non-native speakers often spend considerably more time on reading and writing in English and encounter higher rejection rates due to language issues. These obstacles can limit conference participation, hinder publication opportunities, and add financial and mental health burdens, especially for early-career researchers. Therefore, it can be inferred that mastering EMP or English for Academic Purposes (EAP) (or English for Research and Publication Purposes, a term introduced by Flowerdew and Habibie in 2021) early in one's career could save valuable time and resources in the medical profession as well.

The perceived and recognized need for ESP is also evident in medical schools, where teaching and learning EMP is gaining importance worldwide (Ahmed, 2022; Johnson & Tweedie, 2024; Tweedie & Johnson, 2022), especially in programs where the medium of instruction is not English (non-EMI programs). It should be emphasized that teaching and learning EMP is largely different from teaching and learning EGP in several ways: (1) EMP is predominantly taught at medical schools; (2) The learners already have a certain level of English knowledge; (3) The learners are considered adults in the sense that they are over 18 years of age, and 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 & Hiver, 2020, p. 20); (4) EMP is learnt for a purpose; it is considered a tool in the hands of its users

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(Dudley-Evans & St John, 1998, pp. 4–5), as Hyland (2022) aptly describes ESP as being "unashamedly applied"; (5) This purposeful nature aligns with the defining characteristic of all subcategories of ESP, including EMP: they are inherently goal-oriented, as learners' needs are driven by their future academic or occupational goals. In addition, nowadays, English must be separated from other languages in the sense that English is becoming a basic educational skill (Dörnyei & Ushioda, 2011, p. 72).

As a result of the aforementioned differences, the motivation for learning EMP and EGP may vary. Based on the literature and previous research findings, it can be stated that the characteristics that differentiate learning EMP from learning EGP can significantly influence student motivation. Understanding student motivation in learning EMP would be crucial because it can provide useful insights for language instructors and decision-makers alike: (1) It can support the development of curricula and teaching methods tailored to medical students' needs (Demír & Hamarat, 2022). (2) Understanding the specific motivational factors can lead to improved educational outcomes. (3) Mastery of EMP enables students' integration into the international scientific community and provides access to the latest research findings. As practicing doctors, they will be able to read and author English-language articles, participate in international conferences, and collaborate in international medical and scientific initiatives, further contributing to scientific progress. In the long term, this can benefit patients by raising the quality of healthcare and, consequently, increasing the number of healthy life years. (4) By deeply understanding students' motivation in learning EMP, we enhance our ability as instructors to inspire and motivate them effectively (Ushioda, 2022). This is how investigating and gaining knowledge about (medical) students' motivation can be put to practical use, thereby bridging theory and practice.

To date, studies on language learners' motivation in the context of ESP (including EMP) are scarce (Martín-González & Chaves-Yuste, 2024), and we could not find any that comprehensively assess medical students' motivation to learn EMP. This highlights a clear gap in the literature, particularly in relation to the development of context-sensitive and theoretically grounded measurement tools in non-EMI medical settings. While previous studies have examined motivation in second language acquisition more broadly, the specific context of EMP in non-EMI medical education has remained largely unaddressed. Existing tools do not adequately reflect the distinctive needs, goals, and professional trajectories of medical students learning EMP. Thus, our aim was to develop a questionnaire suitable for assessing medical students' motivation to learn EMP. Given the high stakes of professional communication in medicine, developing a valid and reliable tool to explore student motivation in EMP contexts can support more informed instructional design, curriculum planning, and teacher training.

This article begins with an overview of the relevant literature, discussing why scales based on Dörnyei's motivational theory were deemed appropriate for adaptation in measuring student motivation. The methodology section then details the objectives, research questions, participants involved, the questionnaire development process, and the conditions of data collection followed by the methods we applied to identify the component structure. Finally, the Discussion and Conclusion sections answer the research questions and concisely summarize the findings and implications.

2. Literature Review

In the following sections, we examine the motivational theories that directly influenced the development of the questionnaire items on EMP learning motivation. These theories had provided the framework for constructing questionnaires in previous studies, and the items of these questionnaires we subsequently contextualized to be tailored specifically for students studying EMP. While studies on language learning motivation are abundant (Al-Hoori, 2017, 2018; Boo et al., 2015;

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Liu, 2024; Mahmoodi & Yousefi, 2022), few focus specifically on the unique motivational factors specific to learning ESP, let alone EMP.

The intrinsic vs extrinsic dichotomy or continuum has long served as a foundational framework in motivation research. Deci and Ryan's Self-determination Theory (Ryan & Deci, 2000a; Ryan & Deci, 2017) elaborates on various types of intrinsic and extrinsic motives. Intrinsic motivation is self-rewarding, meaning that we engage in an activity because it is inherently interesting or enjoyable (Ryan & Deci, 2000b), a quality that Brown (1994) highlights as particularly important in the context of language learning. On the other hand, in the classic case of extrinsic motivation, one is propelled (coerced, seduced, pressured) to act. Notably, Ryan and Deci (2017) argue that this intrinsic-extrinsic dichotomy is better conceptualized as a continuum, sometimes referred to as the autonomy–control continuum. Empirical studies within the ESP field reflect this complexity: Pavel (2020), for instance, examined tertiary students' motivation to learn EMP in Romania (see Table 1), initially hypothesizing that extrinsic motivation, especially the goal of working abroad, would be dominant. Surprisingly, her findings revealed stronger intrinsic motivation. Similarly, Brady (2021) found intrinsic motivation to be a stronger predictor of L2 achievement in ESP contexts than extrinsic motivation.

Integrative and instrumental motivation, also referred to as orientation or attitude, are frequently used concepts in motivation research, initially introduced by Gardner and Lambert (1959, 1972). According to Brown (1994), a distinction should be made between integrative and instrumental orientations, and we should not use the word motivation instead of orientation. "Orientation means a context or purpose for learning; motivation refers to the intensity of one's impetus to learn" (Brown, 1994, p. 75). Originally inspired by the Canadian context, the integrative component of language learning was intended to describe one's interest in language learning to interact with valued members of another community. Gardner (2001, p. 1) later admitted that many other meanings had become attached to the term. When the relevance of this concept was questioned in monolingual societies like Hungary, Csizér and Dörnyei (2005) contextualized integrative motivation as an aspiration to become a "cosmopolitan citizen of the world." This perspective aligns well with the goals of EMP, particularly EMP, where learners are often motivated to become members of the international medical discourse community, whether as readers or authors of medical literature, university lecturers, or physicians working abroad or attending international conferences. This perspective is echoed by Tomak and Šendula-Pavelić (2017), whose study shows that students of medical and healthcare studies are more integratively motivated – they learn EMP because they want to integrate into the target language society or better collaborate with their colleagues belonging to the target language (discourse) community (Tomak & Šendula-Pavelić, 2017, p. 166). Instrumental orientation is characterized by practical, goal-oriented factors such as earning a degree or advancing one's career. This is especially relevant in learning EMP (ESP), and this type of motivation can also positively affect language learning (Gardner & MacIntyre, 1991). Research indicates that university students often have instrumental motivation in learning foreign languages (Marošan & Marković, 2019; Rodríguez Muñoz et al., 2024) as observed among Japanese medical students, who are primarily motivated by the need to read research, communicate internationally, and attend global conferences (Mathis et al., 2021). English serves as a "vocational passport" for these students into the international medical community. This also highlights that the desire for belonging can be interpreted variably, sometimes aligning with integrative motivation and other times with instrumental motivation, making it challenging to find a clear boundary between the two (Csizér & Kormos, 2009). Taguchi et al. (2009) refined the concept of instrumental motivation by distinguishing between promotion-driven (aspiration-focused) and prevention-driven (avoidance-focused) aspects of Instrumentality. In this framework, Instrumentality-Promotion is linked to achieving ideal outcomes, such as career success, while Instrumentality-Prevention involves avoiding negative consequences, such as avoiding failure or meeting obligatory requirements. Notably, Brown

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(1994) points out that the dichotomy of instrumental and integrative orientations cannot be confused with extrinsic and intrinsic motivation.

Dörnyei (2005, 2009) fused second language (L2) motivation with the psychological theories of the self through the L2 Motivational Self System (L2MSS). L2MSS is based on Gardner's model of motivation, Markus and Nurius' possible selves (Markus & Nurius, 1986), and Higgins' Self-Discrepancy Theory (Higgins, 1987). "Possible selves are visions of the self in a future state; they represent the individuals' ideas of what they might become, what they would like to become, and what they are afraid of becoming, and thus they denote a unique self-dimension that refers to future rather than current self-states" (Markus & Nurius, 1986 cited in Dörnyei & Ushioda, 2011, p. 80). In 2015, Boo et al. found that Dörnyei's L2MSS was the most commonly applied research paradigm in the field of L2 motivation, and this has not changed since (Fan, 2024). According to L2MSS, language learners' motivation is directly influenced by three factors: (1) The students' ideal L2 self, i.e., to what extent they can see/visualize themselves as they are using the foreign language at a high level in the future; (2) The students' ought-to L2 self, i.e., "the attributes that one believes one ought to possess to meet expectations and to avoid possible negative outcomes" (Dörnyei, 2009, p. 29); (3) The students' motivation is also shaped by their language learning experiences (Csizér, 2012, 2019).

Several factors supported the suitability of L2MSS for our research goals. First, according to Dörnyei and Ryan (2015), it represents a point of intersection between theory and practice in the psychology of language learning. Second, the L2MSS framework has gained widespread acceptance for its adaptability across contexts (Csizér, 2019; Liu, 2024). This adaptable nature was also highlighted by Lanvers (2016); however, they warn that studies need to look at different learner groups with different contextual factors, and the L2MSS landscape has long been missing the ESP context (Brady, 2021, p. 112). Third, the L2MSS has been extensively applied to university students (Boo et al., 2015; Liu, 2024); however, studies often do not specify whether these students were learning EGP or ESP.

3. Methodology

3.1. Research Gap and Research Questions

To date, research on language learners' motivation in the context of ESP, particularly EMP, remains limited (Martín-González & Chaves-Yuste, 2024). Internationally, few studies (Table 1) have been specifically designed to capture the motivation of medical students to learn EMP in non-EMI programs (EMI context: Ahmed, 2022; Chan et al., 2022).

Table 1. Recent studies on medical students' EMP learning motivation in non-EMI programs

	Location	Number of participants	Examined dimensions	Number of items on motivation	Likert scale	Data Analysis	Main findings
Tomak and Šendula-Pavelić (2017).	Croatia	242	instrumental, integrative, personal	12	5	PCA Cronbach's α	students were more integratively motivated
	final-year students at the Faculty of Medicine and the Faculty of Health Studies at the University of Rijeka						
Marošan & Marković	Serbia	61	instrumental, integrative	20	6	descriptive	

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(2019).	1st-year medical students of the Faculty of Medicine, University of Novi Sad						high degree of instrumental and integrative motivation
Pavel (2020)	Romania	329	extrinsic, intrinsic	10	5	descriptive	students scored slightly higher in intrinsic motivation
	1st- and 2nd-year undergraduates majoring in four specializations at the Faculty of Medicine, Transilvania University of Brașov: General Medicine, General Nursing, Balneo-Physio-Kinesiotherapy and Recuperation, and Clinical Laboratory						
Demír and Hamarat (2022).	Turkey	320	extrinsic, intrinsic, integrative	14	5	PCA EFA CFA Content validity ratio	The developed tool is valid and reliable in identifying the language learning motivations of medical students
	1st- and 2nd-year students at the Faculty of Medicine, Çanakkale Onsekiz Mart University						
Hosseini and Shokrpour (2019).	Iran	106	teacher characteristics & teaching material; immigration & personal aspirations; instrumental motivation; intrinsic / integrative motivation; learning environment	30	5	EFA Cronbach's α ANOVA	students who studied medicine were more motivated than nursing students
	1st-year nursing and medical students at the University of Medical Sciences, Shiraz						
Mathis et al. (2021)	Japan	113	instrumental, integrative	16	5	descriptive Cronbach's α	Students were primarily instrumentally and vocationally motivated
	2nd-year medical students at the medical faculty of a national university						
Mayers et al. (2023).	Japan	355	instrumental, vocational	10	6	one-way ANOVA	Students are strongly instrumentally and vocationally motivated
	three groups of 2nd-year medical students at a large national university						

Note. *EMP = English for Medical Purposes; EMI = English as a Medium of Instruction; non-EMI = (programs where) English is not the medium of instruction; PCA = principal component analysis; Cronbach's α = Cronbach's alpha coefficient; EFA = exploratory factor analysis; CFA = confirmatory factor analysis; ANOVA = analysis of variance.*

These studies tend to focus on the instrumental vs integrative or the external vs internal motivation dichotomy, occasionally incorporating other dimensions, yet none apply Dörnyei's L2MSS. Addressing this gap, we aimed to develop a questionnaire to measure medical students' motivation to learn EMP. In this article, our research questions (RQ) are as follows:

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RQ1: Are the scales adapted and contextualized to assess the motivational disposition of Hungarian medical students in the context of learning EMP appropriately structured and internally consistent?

RQ2: Do the extracted principal components form coherent dimensions, and what relationships exist among these dimensions?

3.2. Developing the EMP Motivation Questionnaire

In developing the scale, we drew on Brady's (2019) validated Motivational Factors Questionnaire, which examines Spanish learners of English. It was inspired by Dörnyei's motivational constructs and is based on earlier studies by Ryan (2009) and Taguchi et al. (2009). Table A.1 in the Appendix shows the scales used in previous studies compared to the scale structure we applied in the Main Study (asterisks indicate scales used in the Pilot Study). Figure 1 illustrates the steps we took in developing the questionnaire. In adapting the scales, we translated (into Hungarian) and contextualized the relevant items. Our goal was for the students to think directly about their experiences in their EMP classes when responding.

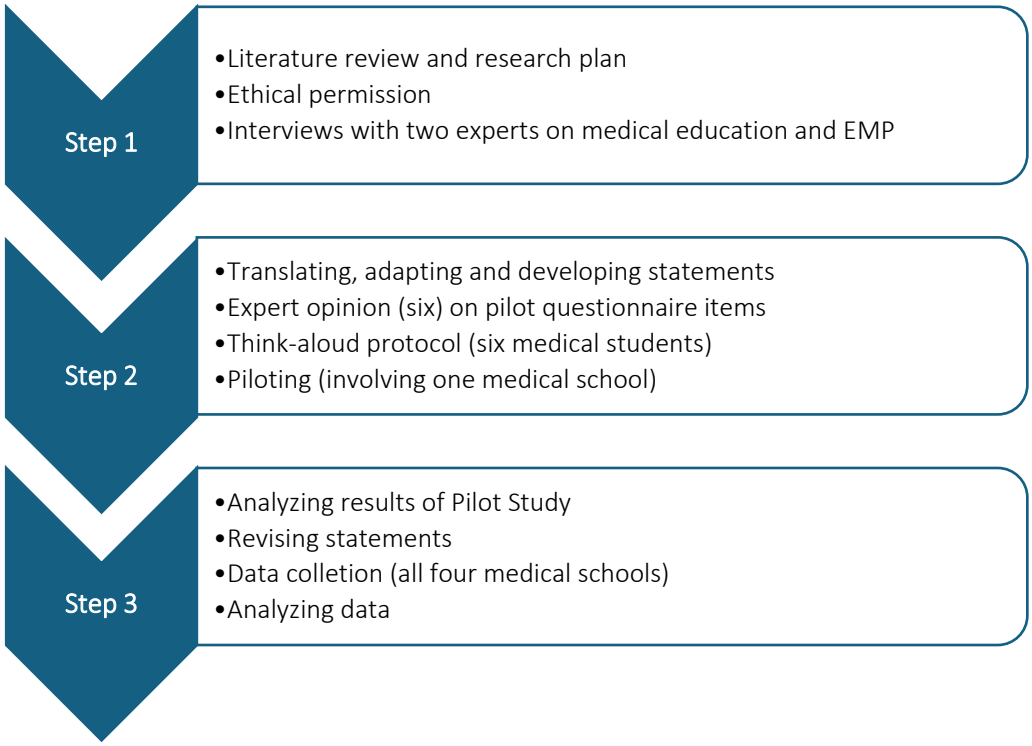

Figure 1. Steps of developing a questionnaire on EMP learning motivation

Note. EMP = English for Medical Purposes.

Based on interviews with experts and our experience as EMP instructors, certain items from previous studies (e.g., cultural interest, parental encouragement) were omitted at the beginning. While retaining the original intent of the selected scale items, we adapted and contextualized them based on insights from the prior Pilot Study, expert interviews, students' views on EMP, and our experience as EMP instructors (Table 2).

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Table 2. Examples of rewording and/or embedding in the context of some scale items

	Scales	Items/Statements in Brady (2019)	Statements with their identifying number as examples of rewording and/or embedding in context*
Minor modifications	Self-Efficacy	I find it quite easy to learn English.	Q44 I find learning EMP fairly easy.
	Intended Learning Effort	I will likely continue to study English after my degree.	Q11 I will probably continue to improve my EMP even after I graduate.
Major modifications	Instrumentality – Prevention	If I don't learn English, I can't work in what I want.	Q31 EMP is important to me because I do not want the lack of it to limit my future opportunities.
	Instrumentality – Promotion	Learning English is important to me because it will be essential for work.	Q36 Knowing EMP is essential to me because I think I will need it as a practicing doctor.
	Ideal L2 Self	When I think of my professional career, I see myself using English at work.	Q18 I see myself as a confident user of EMP in the future.
	Ought-to L2 Self	Actually, I feel obliged to learn English; it is not my desire.	Q41 I am only studying EMP because it is required by my medical school for graduation.
New items	Attitude to learning EMP	*e.g.,* Q48 It almost feels natural to me that learning English is necessary, and now it's time to learn EMP.	
	L2 Anxiety	*e.g.,* Q72 In EMP class, it bothers me when I hear my pronunciation sound too Hungarian (*Hunglish*).	
	Self-Confidence	*e.g.,* Q7 I think I could make myself understood in any professional (medical) situation in English.	
	Integrativeness	*e.g.,* Q29 Knowing EMP is important to me because it allows me to become a part of the international professional (publishing and scientific) community.	

** The distributed questionnaire was in Hungarian. The items indicated here have been translated (back) to English to demonstrate the extent of modifications.*

Note. *EMP = English for Medical Purposes*

The scales of Self-Efficacy and Intended Learning Effort are based on Brady's study (2019), and we barely changed them. Self-efficacy (coined by Bandura, 1977) is often seen as a key component of motivation: learners who believe in their success in language learning are more able to envision themselves as future English speakers. Intended Learning Effort, which is often a self-report of motivated behavior, has been found to be the most common criterion variable used in L2MSS studies in Al-Hoorie's (2018) meta-analysis. Statements of Instrumentality-Prevention, Instrumentality-Promotion, Ideal L2 Self, and Ought-to L2 Self were included in Brady's (2019) study but underwent major modifications due to contextualizing (Table 2). The statements of Attitude to learning EMP, L2 Anxiety, Self-Confidence, and Integrativeness were developed specifically for this study. In our questionnaire, in the context of EMP, the statements assessing Integrativeness are meant to reflect the EMP learner's desire to belong to the international medical discourse community by reading and writing English-language medical literature, attending international conferences, and joining

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international medical societies. Integrativeness, i.e., belonging to the medical community, figuratively, refers to belonging to the English-language discourse community (e.g., physicians practicing in Hungary will need English if they want to publish articles, hold conference presentations, or simply keep up with the rapidly developing medical science as readers of the literature). Literally belonging to the target language community may as well refer to working abroad and actually being part of the English-speaking medical context. In our view, the latter is not a negligible aspect either, since, in exploring the motivations of Hungarian medical students to learn EMP, we must take into account that many of them are planning their future abroad. To accomplish this goal, an advanced level of English (and probably the knowledge of another foreign language) is essential. Table 3 shows the scales we used in the Main Study, along with the number of items. For the entire questionnaire in Hungarian and English, see Table A.2 in the Appendix.

Table 3. Scales and the number of items used in the Main Study

Criterion measure
0. Intended Learning Effort 5 items on medical students' commitment and willingness to invest effort in developing their EMP skills
Motivational Variables *(relating to the learners' motivation, goals, and expectations in learning EMP)*
1. Ideal L2 Self 7 items on medical students' aspirations for achieving fluency in EMP, envisioning themselves as competent communicators
2. Ought-to L2 Self 5 items on medical students' perceptions of external expectations and social pressures to learn EMP
3. Integrativeness 4 items on medical students' desire to be part of the international medical discourse community
4. Instrumentality-Promotion 12 items on medical students' recognition of career and academic advantages of learning EMP
5. Instrumentality-Prevention 6 items on medical students' concerns about the potential disadvantages of not mastering EMP
Affective (emotional) Variables *(relating to the learners' emotions, attitudes, and feelings during the learning process of EMP*
6. Attitude to EMP learning 14 items targeting medical students' attitude toward learning EMP
7. L2 Anxiety 7 items on medical students' fear of judgment in terms of EMP
Cognitive/Behavioral Variables *(pertaining to learners' beliefs in their own abilities and their confidence in using the language)*
8. Self-Confidence 6 items on medical students' self-perception of EMP proficiency
9. Self-Efficacy 4 items on medical students' belief in their own ability to succeed in learning EMP

Note. *EMP = English for Medical Purposes; L2 = Second Language.*

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3.3. Data Collection and Participants in the Pilot Study and Main Study

The Pilot Study was conducted in November 2022, involving 103 Hungarian medical students from a single medical school in Hungary who had attended at least one semester of EMP classes. The pilot questionnaire was distributed via an online link posted on the virtual news board by the Registrar's Office. Based on the results of the Pilot Study, we identified several areas for improvement: (1) We concluded that the Pilot Study's distribution method did not reach students effectively. Consequently, for the Main Study, conducted between February and April 2024, we adjusted the approach by sending the online questionnaire via email directly to students through the Registrar's Offices of all four medical schools in Hungary. (2) Due to a weak Cronbach's α, we increased the number of items in the construct of Integrativeness. (3) In the construct L2 Anxiety, one double-barreled item was split into two separate items to improve clarity and reliability. (4) Constructs Self-Efficacy and Intended Learning Effort were included only in the Main Study. Self-efficacy was added because of its strong theoretical link to motivation, while Intended Learning Effort was incorporated as a reliable criterion measure, as demonstrated in previous research.

The Main Study's questionnaire was available in Hungarian to medical students (undergraduate, years 1 to 6) in Spring 2024. Participants consented to their data and responses being used for research purposes, with assurances of anonymity and privacy (Table 4).

Table 4. Characteristics of Main Study

Participants	Hungarian medical students studying in non-EMI programs (medium of instruction: Hungarian) at the four medical schools of Hungary in years 1 to 6
Participation	Voluntary; no sensitive data is obtained
Inclusion criteria	Student has attended an EMP class at least one semester (n=283)
Distribution	via email sent directly to students through the Registrar's Offices
Available	February to April 2024
Completion time	15–20 minutes
Questionnaire	Self-administered, containing • demographic questions (gender, university year, number of semesters they attended EMP courses, mother tongue, first and second foreign languages, language exams, affiliation) • closed-ended questions (70) on EMP learning motivation (6-point Likert scale) • other questions not covered in this article
Data Analysis	IBM SPSS Statistics 28 and Jamovi 2.5.3

Note. *EMI = English as a Medium of Instruction; non-EMI = (programs where) English is not the medium of instruction; EMP = English for Medical Purposes*

All medical students enrolled in the Hungarian-language programs of the four medical schools operating in Hungary were invited to participate since this study focuses on the EMP learning motivation of native Hungarian students enrolled in the program where Hungarian is the medium of instruction (Hungarian as the medium of instruction, HMI). Hungary's four medical schools offer undivided medical education programs that span 12 semesters. Students can choose between

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programs conducted in Hungarian, English (English as a medium of instruction, EMI), or German. The HMI program is state-funded and primarily serves native Hungarian speakers, while the EMI and German programs, which are self-financed, generally attract international (predominantly non-Anglophone) students. The invitation email was sent to the medical students in the HMI program by the Registrar's Offices of the respective universities, with permission obtained previously from the respective Deans.

The questionnaire was answered by 283 medical students (Figure 2). The sample comprises predominantly female respondents (68.6%), with the largest group being students from the University of Debrecen (46.6%). Most participants are in their first year (45.6%), and over 90% of the respondents have attained B2 or C1 levels in English proficiency.

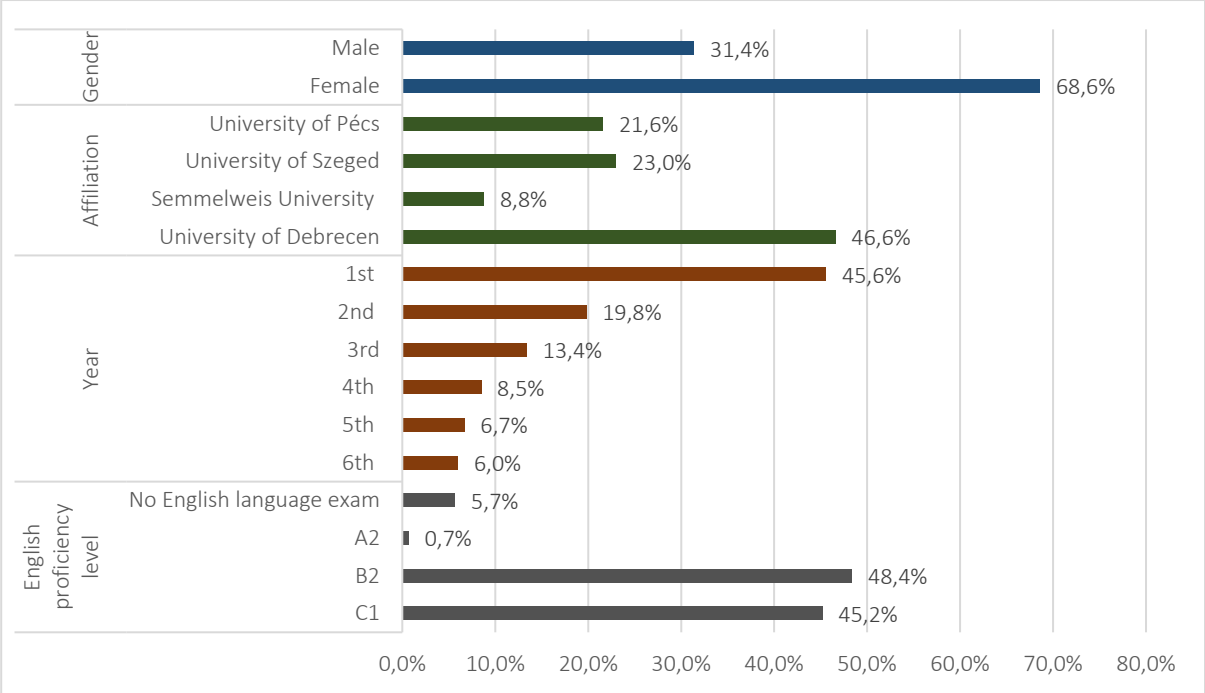

Figure 2. Respondents' main characteristics and English proficiency levels based on their language exams according to the Common European Framework of Reference for Languages (n=283)

3.4. Data Processing

All participants (n=283) provided valid responses to the items measuring specific dimensions of motivation in EMP learning. The analysis relies on the results of the questionnaire's closed-ended questions, which did not allow for "Other" or open-ended responses. Consequently, no data-cleaning procedures were required. Furthermore, as all respondents provided valid answers for all variables used in this article, no adjustments were needed for missing data, and the interpretation of our results is not affected by bias caused by missing data.

3.5. Data Analysis

The normal distribution of the items was tested using the Kolmogorov-Smirnov test and by evaluating skewness and kurtosis statistics, complemented by visual inspection of histograms and Q-Q plots. We conducted 10 separate principal component analyses (PCA), each involving a maximum of 12 items, with data from 283 respondents in every analysis. To ensure the appropriateness of the data for component extraction, we employed the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity.

For component selection, we applied the criterion that only components with an eigenvalue greater than 1 were retained, and each retained component had to explain at least 33% of the

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variance of the original variables (Jolliffe, 2010). We set a component loading threshold of 0.400, considering variables with loadings above this value as significant contributors to the component. The threshold of 0.400 for component loadings was selected based on commonly accepted practices in PCA, where a loading of 0.400 or higher is typically considered to indicate a sufficiently strong association between the item and the underlying factor (Hair et al., 2010). No rotation was performed on the extracted components.

Reliability was assessed using Cronbach's α, with a threshold of 0.7 considered acceptable (Bujang et al., 2018) for internal consistency. When Cronbach's α fell below this value, we still reported it to provide a complete picture of the internal consistency of the components. Given that many Likert-scale variables did not follow a normal distribution, McDonald's ω was also calculated as a measure of internal consistency, applying the threshold of 0.65 (Kalkbrenner, 2021).

Using PCA, we established the structure of variables for each dimension, and after verifying their reliability with Cronbach's α, we created indices. We summed the variable values and divided them by the number of variables, measuring each dimension of student motivation on the original 1-to-6 scale. On this scale, a score of 6 represents the most negative interpretation (strong disagreement) for each variable.

To examine the relative salience of the different motivational factors, we applied paired t-tests to compare the mean scores across the motivational scales. Although the constructs represent distinct psychological dimensions, this approach allowed us to determine which types of motivation students perceived as more or less influential. Similar comparative approaches have been used in motivation research to rank the perceived importance of motivational dimensions (Rambe & Mavhundutse, 2018). Scales with the same superscript letter indicate no significant differences ($p > 0.05$), while scales with different superscript letters represent significant differences ($p < 0.05$) (Table 7).

Spearman's correlation was used to assess the relationships between the scales, aiming to explore how the motivational factors are interrelated. This method was chosen because of the non-normal distribution of the ordinal variables (Ismail et al., 2016).

4. Results

Based on the Kolmogorov-Smirnov test for normality ($p < 0.05$), skewness and kurtosis statistics, and visual inspections using histograms and Q-Q plots, it was evident that the majority of the variables used in the analysis did not follow a normal distribution. Only a few items had skewness and kurtosis values close to zero, while most variables showed notable deviations from normality. The KMO measure and Bartlett's test confirmed the data's suitability for factor analysis across all dimensions of the instrument designed to measure motivation in learning EMP. KMO values ranged from 0.612 to 0.862, indicating sufficient sampling adequacy. Bartlett's test for all components was significant ($p < 0.001$), affirming that the correlation matrix was suitable for PCA.

PCA was conducted to examine the underlying structure of the instrument's scales. For each set of variables, a single principal component emerged, indicating unidimensionality across the constructs. However, for the Attitude to EMP scale, PCA and subsequent reliability analyses revealed two distinct components representing negative and positive attitudes. Some original items were excluded based on PCA and Cronbach's α calculations; these are listed in Table A2 in the Appendix, with retained items shown in Table 5.

The explained variance exceeded 33% across all scales, with values ranging from 46.7% to 72.2%. Most components demonstrated strong representation, with explained variance surpassing 50%, except for Instrumentality-Promotion (46.7%) and Instrumentality-Prevention (47.1%).

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Component loadings ranged from 0.535 to 0.933, reflecting strong item contributions to their respective components. Items within components such as Ideal L2 Self, Intended Learning Effort, and Self-Efficacy consistently exhibited loadings above 0.70, indicating their strong fit within their associated component. Lower loadings, such as Q32 in Instrumentality-Prevention (0.597) and Q2 in Integrativeness (0.598), remained within acceptable ranges (Table 5).

Table 5. Explained variance and component loadings of motivation constructs from PCA

Component	Variance Explained (%)	Item	Component loading	Component	Variance Explained (%)	Item	Component loading
Intended Learning Effort	67.463	Q11	0.612	Attitude to EMP *positive*	54.313	Q25	0.652
		Q59	0.886			Q65	0.829
		Q60	0.933			Q67	0.779
		Q61	0.817			Q68	0.818
Ideal L2 Self	72.211	Q13	0.834			Q8	0.565
		Q14	0.812			Q48	0.665
		Q15	0.726			Q58	0.535
		Q17	0.892	Attitude to EMP *negative*		Q9	0.703
		Q18	0.914			Q10	0.672
		Q19	0.906			Q24	0.688
Ought-to L2 Self	53.925	Q20	0.707	L2 Anxiety	54.270	Q43	0.746
		Q21	0.742			Q46	0.803
		Q50	0.753			Q64	0.831
Integrativeness	48.992	Q2	0.598			Q66	0.758
		Q22	0.823			Q70	0.662
		Q29	0.709			Q71	0.669
		Q42	0.649			Q72	0.670
Instrumentality-Promotion	46.699	Q3	0.649	Self-Confidence	62.744	Q5	0.746
		Q28	0.729			Q6	0.803
		Q33	0.679			Q7	0.831
		Q34	0.701			Q56	0.758
		Q35	0.633			Q57	0.662
		Q37	0.694			Q63	0.669
		Q38	0.693	Self-Efficacy	64.345	Q44	0.833
Instrumentality-Prevention	47.072	Q30	0.800			Q45	0.724
		Q31	0.730			Q62	0.843
		Q32	0.597				
		Q47	0.644				
		Q51	0.639				

Note. *PCA = principal component analysis; EMP = English for Medical Purposes; L2 = Second Language.*

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Cronbach's α was used to assess internal consistency, with seven scales surpassing the threshold of 0.70. Components such as Integrativeness, Instrumentality-Prevention, and Attitude to EMP-Negative exhibited α values slightly above 0.60, while Ought-to L2 Self (0.572) fell below this threshold. These findings suggest varying degrees of reliability, warranting potential refinement of specific scales. Due to the fact that a significant portion of the variables did not follow a normal distribution, the reliability of Cronbach's α is less robust. Consequently, McDonald's ω was also employed to evaluate the internal consistency of the components (Table 6).

Table 6. Internal consistency of motivation constructs: Cronbach's α and McDonald's ω values for PCA Components

Component	Cronbach's α	McDonald's ω
Intended Learning Effort	0.834	0.849
Ideal L2 Self	0.915	0.924
Ought-to L2 Self	0.572	0.574
Integrativeness	0.651	0.665
Instrumentality-Promotion	0.800	0.810
Instrumentality-Prevention	0.689	0.723
Attitude to EMP positive	0.832	0.838
Attitude to EMP negative	0.641	0.649
L2 Anxiety	0.856	0.860
Self-Confidence	0.871	0.882
Self-Efficacy	0.704	0.731

Note. *Cronbach's α = Cronbach's alpha coefficient; McDonald's ω = McDonald's omega coefficient; EMP = English for Medical Purposes; L2 = Second Language.*

We generated indices for each dimension by averaging variable scores on a 1-to-6 scale, where 1 indicates strong agreement, and 6 indicates strong disagreement. Ideal L2 Self had the lowest mean value (2.19), indicating a high level of agreement. In contrast, Ought-to L2 Self had the highest mean value (3.41). The scales' values and standard deviations are presented in Table 7. We reverse-scored two scales to accurately reflect the true ordinal direction of the scales. We conducted paired t-tests to determine which scales showed significant differences. Scales sharing the same superscript letter represent groups where no statistically significant differences were observed ($p > 0.05$). This indicates that students rated these constructs similarly in terms of their motivational importance. Conversely, scales with different superscript letters represent constructs with significant differences in mean values ($p < 0.05$).

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Table 7. Descriptive statistics of EMP motivation scales

Scales	Mean	Std. Deviation
Ideal L2 Self [a]	2.19	1.09
Self-Efficacy [a]	2.22	0.99
Self-Confidence [a]	2.25	0.96
Attitude (positive) to EMP [a]	2.28	0.89
Attitude (negative) to EMP [a]	2.29	1.05
Instrumentality-Prevention [b]	2.44	0.95
Instrumentality-Promotion [b,d]	2.50	0.94
Integrativeness [c,d]	2.59	0.99
L2 Anxiety [c,d]	2.64	1.15
Intended Learning Effort [c]	2.65	1.08
Ought-to L2 Self [e]	3.41	1.16

Note. *EMP = English for Medical Purposes; L2 = Second Language. Superscript letters indicate homogeneous subsets based on post hoc comparisons (p > .05); different letters denote statistically significant differences (p < .05). The values of negatively worded scales (Attitude [negative] to EMP, L2 Anxiety) were reversed for interpretability.*

We used Intended Learning Effort as the criterion measure, which correlated significantly $p < 0.05$) with all scales except Attitude to EMP-Negative ($p > 0.05$).

5. Discussion

5.1. Answering RQ1: Are the scales adapted and contextualized to assess the motivational disposition of Hungarian medical students in the context of learning EMP appropriately structured and internally consistent?

The findings of this study confirm the internal structure and reliability of the scales adapted for Hungarian medical students in the context of learning EMP. The PCA demonstrated that most components were unidimensional, with explained variances exceeding the acceptable threshold of 40% and item loadings consistently above 0.6 (Hair et al., 2010; Tabachnick & Fidell, 2013). The 40% threshold for explained variance is a commonly accepted benchmark in PCA, particularly in social science research. It represents the minimum proportion of variance that a factor or component should explain to be considered meaningful in the context of the study. The high explained variance for most scales demonstrates that the instrument effectively captures the dimensions it is designed to measure. However, the relatively lower explained variance for Instrumentality-Promotion and Instrumentality-Prevention suggests that these components may be influenced by additional factors not accounted for in this study. Future research could explore these dimensions further to refine their measurement.

Reliability analysis further supported the robustness of the scales, with seven constructs surpassing the commonly accepted Cronbach's α threshold of 0.7. Cronbach's α values indicate

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strong internal consistency for most scales, supporting their reliability and coherence. The use of McDonald's ω provided additional support for internal consistency, particularly for scales with slightly lower α values, such as Ought-to L2 Self (α = 0.572). The lower α values for Ought-to L2 Self suggest potential limitations in this scale, possibly due to item variance within the construct. The lower reliability of this scale suggests that they may benefit from further refinement, such as adding or revising items to increase coherence. These findings are consistent with prior studies underscoring the difficulties of capturing external motivational factors, such as peer influence or institutional expectations, which may exert less influence on our sample. Despite these limitations, Cronbach's α values across most scales confirm the instrument's reliability and support its use in assessing diverse motivational factors in EMP learning contexts. Thus, in answer to our first research question, it can be concluded that, based on the PCA and reliability analysis, the adapted scales are suitable for assessing the motivational disposition of Hungarian medical students learning EMP, offering a reliable tool for future research in this area.

Positioning our study within the context of previous research (with the caveat that we contextualized the items), we observe that our findings align with international data, which show that the Ideal L2 Self consistently emerges as a strong motivational factor in L2 learning (Fajt & Bánhegyi, 2023; Huhtala et al., 2019; Pálinkás, 2012; Zeng & Jia, 2023). Hungarian medical students appear to be driven by a vision of themselves as proficient and competent users of English (for Medical Purposes) in professional settings. Nevertheless, it has to be mentioned that the studies mentioned above were not conducted among medical students learning EMP. If we concentrate on the studies involving medical students (Table 1), where not the L2MSS motivational theory was used, we can see that our findings show that on the external-internal motivation continuum, our respondents' motivation leans toward the internal end, which is in line with the international studies conducted within this context. The motivational profile of the respondents suggests a predominance of intrinsic motivation, as reflected in the low mean scores (1: strongly agree; 6: strongly disagree) for most scales, particularly Ideal L2 Self and Self-Efficacy, suggesting that the students are learning EMP out of personal drive, having internalized and recognized the necessity of EMP. Our results are also in line with previous research (Table 1), emphasizing the goal-oriented nature of learning ESP (including EMP): in the context of the instrumentality-integrativeness dichotomy, Instrumentality plays a predominant role. Students are motivated to learn EMP as they perceive it as a tool that supports their career advancement. The relatively weaker role of Integrativeness, on the one hand, may be attributed to the large number of lower-year students in the sample (Figure 2).

5.2 Answering RQ2: Do the extracted principal components form coherent dimensions, and what relationships exist among these dimensions?

The results reveal coherent and theoretically grounded dimensions of motivation in EMP learning. Constructs such as Ideal L2 Self, Intended Learning Effort, and Self-Efficacy demonstrated high levels of explained variance and strong reliability, underscoring their centrality in shaping students' motivation. Notably, the emergence of two distinct components for Attitude to EMP (positive and negative) highlights the complexity of students' perceptions. While many medical students recognize the importance of EMP for their professional development, some harbor negative attitudes, which may be attributed to differences in their individual experiences and expectations, as well as to whether EMP classes are mandatory.

The correlation analysis identified significant relationships between Intended Learning Effort and most motivational dimensions. Constructs such as the Ideal L2 Self and Self-Efficacy showed the strongest correlations, indicating that students' ability to envision themselves as proficient EMP users and their confidence in their abilities are key drivers of their willingness to invest effort. Conversely, the weaker relationship between Intended Learning Effort and Attitude to EMP-Negative suggests

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that negative attitudes, while present, may not directly deter effort but could influence other dimensions, such as anxiety or self-confidence. The findings underscore the importance of fostering positive attitudes and self-efficacy to sustain motivation. The fact that Intended Learning Effort correlated with all other scales supports the theoretical expectation that students' motivated behavior correlates with their long-term investment in EMP, validating Intended Learning Effort as an effective criterion measure.

Brady (2019) examined the motivation of Spanish university students learning English as a second language, using a questionnaire grounded in the L2 Motivational Self System. Although the study did not target medical students or the EMP context, it similarly found that Intended Learning Effort strongly correlated with constructs such as the Ideal L2 Self and Self-Efficacy. These findings support the theoretical assumption that students' future self-concepts and self-beliefs are key drivers of motivated behavior, an observation mirrored in our study on EMP learners.

6. Conclusion

This study demonstrated the process of creating a questionnaire that can effectively capture medical students' motivation to learn EMP. The questionnaire we developed is based on Dörnyei's motivational framework. The novelty of this questionnaire is that we contextualized the items belonging to the L2MSS and other dimensions we deemed essential in surveying medical students' motivation to learn EMP. The findings confirm that the developed questionnaire reliably captures medical students' motivation to learn EMP. The preliminary results presented here, which aim to validate the functionality of the questionnaire, reveal that students' motivational profiles are predominantly shaped by constructs such as the Ideal L2 Self, L2 Self-Efficacy, Self-Confidence, and medical students' Attitude to EMP. The findings show that the respondent medical students are largely intrinsically motivated, perceiving EMP as a valuable tool for their academic and professional pursuits. These findings are consistent with similar international studies, further validating that the developed questionnaire effectively captures students' motivation to learn EMP. A detailed analysis of the specific results will be presented in a separate forthcoming publication.

7. Recommendations

Developing such a specific questionnaire is important because understanding the specific motivational factors can lead to improved educational outcomes. Understanding medical students' motivation can inform targeted curriculum adjustments, allowing educators to prioritize and enhance motivational factors that resonate most strongly with students. The strong influence of the Ideal L2 Self suggests that by generating this vision, for instance, by integrating authentic materials and scenarios, field trips, and simulations, instructors can engage students more effectively. Incorporating goal-oriented activities that emphasize the practical applications of EMP in medical practice could also enhance engagement. Such alignment of theoretical constructs with practical applications underscores the utility of this study as both an empirical contribution and a tool to support innovations in both curriculum design and teaching methodologies for EMP.

8. Strengths and Limitations

One of the key strengths of this study is the development of a context-sensitive questionnaire specifically designed to explore the motivation of medical students learning English for Medical Purposes in non-EMI settings. By focusing on a learner group that has received limited attention in previous empirical research, the study contributes valuable data to the field of L2 motivation and expands its scope beyond traditionally studied populations. Furthermore, the questionnaire developed in this study is not only a research instrument but also has clear, practical applications: it can be used as a diagnostic and curriculum development tool, enabling educators and course designers to align instructional strategies with the motivational profiles and needs of their students.

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However, a few limitations should be acknowledged. First, the lower reliability scores for Ought-to L2 Self indicate the need for refinement in future iterations of the questionnaire. This could involve rephrasing items or adding new ones to better capture these constructs. Second, the reliance on self-reported data introduces the potential for response bias, which future studies could mitigate through triangulation with qualitative data, such as interviews or focus groups. Third, the questionnaire was distributed among exclusively Hungarian medical students in non-EMI programs, which seemingly limits the generalizability of the findings. However, the study's methodology and the questionnaire items are broadly applicable, offering a model to assess EMP motivation across diverse national contexts. Future research could explore the applicability of the scales in different cultural and institutional contexts or examine longitudinal changes in EMP learning motivation over the course of medical training.

Declarations

Author Contributions. A.S.: Literature review, Conceptualization, Methodology, Investigation, Writing – original draft, Visualization, Data analysis. É.F.: Writing - Review & Editing, Supervision. M.B.: Data analysis. All authors have read and approved the published version of the article.
Conflicts of Interest. The authors declare no conflict of interest.
Funding. APC funding was provided by the University of Szeged (Grant No.: ID7707).
Ethical Approval. Ethical approval for this study was obtained from the Ethics Committee of the Doctoral School of Education of the University of Szeged (approval ID: 1/2023)
Data Availability Statement. The data can be provided by the corresponding author upon request.

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Appendix

Table A.1. Motivational scales used in previous studies and contextualised in the Main Study (EMP Motivation Questionnaire)

Ryan (2009)	Number of items	Taguchi, Magid & Papi (2009)	Number of items*	Brady (2019)	Number of items	EMP Motivation Questionnaire (2024)	Number of items
Intended learning effort	8	Intended learning effort	4/6/6	Intended learning effort	5	Intended Learning Effort	5
Ideal L2 self	6	Ideal L2 self	5/5/6	Ideal L2 self	5	Ideal L2 Self **	7
Attitude to the L2 community	8	Ought-to L2 self	4/7/6	Ought-to L2 self	7	Ought-to L2 Self **	5
		Attitude towards L2 community/Integrativeness	4/4/4	Integrativeness / Attitude to L2 community	7	Integrativeness **	4
Instrumentality	10	Instrumentality-promotion	5/8/6	Instrumentality-promotion	6	Instrumentality-promotion **	12
		Instrumentality-prevention	5/5/8	Instrumentality-prevention	5	Instrumentality-prevention **	6
Attitudes to learning English	6	Attitudes to learning English	4/4/6	Attitudes to current & past learning English	3+4	Attitude toward learning EMP **	14
English use anxiety	6			Language use Anxiety	4	L2 Anxiety **	7
L2 Self-confidence	5					L2 Self-Confidence **	6
				L2 Self-efficacy	4	L2 Self-Efficacy	4
Additional scales used in the previous studies							
Cultural interest	6	Cultural interest	4/3/4	Cultural interest	4		
Parental encouragement	4	Family influence	4/5/6	Parental encouragement	4		
International empathy	3			Interest in the English L	6		
International contact	4			International posture	7		
Interest in foreign Ls	5						
Fear of assimilation	4						
Ethnocentrism	5						
Travel orientation	4						
Milieu	6						
Willingness to communicate	8(x2)						
TOTAL	106		39/47/52		71		70

*****In order of Taguchi (Japan)/Magid (China)/Papi (Iran)*

***Scales used in the pilot study we conducted in 2022*

Note. EMP = English for Medical purposes; L2 = Second Language

Table A.2. Statements in Hungarian applied in the distributed EMP Motivation Questionnaire in the Main Study and their English translation

Intended Learning Effort	***Hungarian***	***English***
Q*11	Valószínűleg a diplomám megszerzése után is fejleszteni fogom a szaknyelvi angoltudásomat.	I will probably continue to improve my EMP even after I graduate.
Q59	Hajlandó vagyok komoly erőfeszítéseket tenni az angol orvosi szaknyelv tanulása érdekében.	I am willing to make a serious effort to learn EMP.
Q60	Keményen dolgozom azon, hogy fejlesszem az angol orvosi szaknyelvi tudásomat.	I work hard to improve my EMP skills.
Q61	Azt hiszem, mindent megteszek az angol orvosi szaknyelv tanulása érdekében.	I believe I am doing everything I can to learn EMP.
*Dropped***:* Q54	Szándékomban áll külföldön tölteni egy kis időt, hogy fejlesszem az angol orvosi szaknyelvi tudásomat.	I intend to spend some time abroad to improve my EMP skills.
Ideal L2 Self	***Hungarian***	***English***
Q13	Elképzelhetőnek tartom, hogy gond nélkül kommunikálok külföldön angol nyelven betegekkel.	I can imagine myself communicating effortlessly with patients in English abroad.
Q14	Látom magam előtt, hogy angolul adok elő egy konferencián.	I can picture myself giving a presentation in English at a conference.
Q15	Valószínűnek tartom, hogy angolul fogok publikálni.	I think it is likely that I will publish in English.
Q17	Hiszem, hogy egyszer folyékonyan, szorongás nélkül fogok tudni kommunikálni angolul szakmai közegben.	I believe that one day I will be able to communicate fluently and without anxiety in English in a professional setting.
Q18	Magabiztos angol szaknyelvhasználóként látom magam a jövőben.	I see myself as a confident user of EMP in the future.
Q19	Elképzelhetőnek tartom, hogy gond nélkül kommunikálok külföldön angol nyelven szakmabeliekkel.	I can imagine myself communicating effortlessly in English with colleagues abroad.
Dropped: Q16	Elképzelhetőnek tartom, hogy tevékenyen részt veszek angol nyelvű cikk publikálásában.	I can see myself actively contributing to the publication of an article in English.
Ought-to L2 Self	***Hungarian***	***English***

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Q20	Azért tanulok/tanultam angol orvosi szaknyelvet, mert mindenkitől azt hallom, hogy manapság ez már elengedhetetlen.	I am studying EMP because everyone says it is essential these days.
Q21	Azért járok angol orvosi szaknyelvre, mert a karon hallgatóként elvárják tőlem az angol szaknyelv ismeretét.	I attend EMP classes because, as a student in this medical school, I am expected to know EMP.
Q50	Az évfolyamtársaim/csoporttársaim is tanulnak/tanultak angol orvosi szaknyelvet, és nem szeretnék kimaradni.	My peers/classmates are also studying EMP, and I do not want to be left out.
Dropped: Q12	Meglátásom szerint a jövőben a szakmámban elvárják tőlem, hogy ismerjem az angol orvosi szaknyelvet.	In my view, knowing EMP will be expected of me in my profession in the future.
Dropped: Q41	Csak azért tanulok angol orvosi szaknyelvet, mert a karunkon a diploma megszerzéséhez kötelező az angol orvosi szaknyelv ismerete.	I am only studying EMP because it is required by my medical school for graduation.
Integrativeness	***Hungarian***	***English***
Q2	Szerintem orvosi szakmai közösségen belül csak angol nyelvtudással lehet érvényesülni.	I believe that within the medical professional community, only those with English language skills can succeed.
Q22	Azért is tanulom az angol orvosi szaknyelvet, mert csak így vehetem ki a részem a tudományos közösségben folyó munkákból.	I am also studying EMP because it is the only way I can participate in the work of the scientific community.
Q29	Fontos számomra az angol orvosi szaknyelv ismerete, mert így válhatok a nemzetközi szakmai (publikációs és tudományos) közösség tagjává.	Knowing EMP is important to me because it allows me to become a part of the international professional (publishing and scientific) community.
Q42	Ha nem tanulnám az angol orvosi szaknyelvet, úgy érzem, kimaradnék valamiből.	If I were not studying EMP, I would feel like I am missing out on something.
Instrumentality Promotion	***Hungarian***	***English***
Q3	Szerintem az orvosi angol szaknyelv birtokában több lehetőségem lesz megfelelő állást találni.	I believe that knowing EMP will give me more opportunities to find a suitable job.
Q28	Az angol orvosi szaknyelv tanulása fontos számomra a pályafutásom miatt.	Learning EMP is important to me for my career.
Q33	Fontos számomra az angol orvosi szaknyelv ismerete, mert külföldi ösztöndíjra (pl. Erasmus) szeretnék pályázni.	Knowing EMP is important to me because I would like to apply for a scholarship abroad (e.g., Erasmus).

Q34	Fontos számomra az angol orvosi szaknyelv ismerete azért is, hogy konferenciákon tudjak előadni.	EMP is important to me so that I can present at conferences.
Q35	Fontos számomra az angol orvosi szaknyelv ismerete, mert egy elméleti intézet munkatársaként kutatni és/vagy oktatni szeretnék.	EMP is important to me because I would like to work in a preclinical department, doing research and/or teaching.
Q37	Fontos számomra a szaknyelvi angoltudás, mert a tudományos életben csak ezzel juthatok előbbre.	EMP is important to me because it is the only way to advance in the scientific field.
Q38	Fontos számomra az angol orvosi szaknyelv, mert elképzelhető, hogy egyszer külföldön fogok dolgozni.	EMP is important to me because there is a chance I will work abroad one day.
Dropped: Q4	Szerintem Magyarországon idegen nyelvtudás nélkül is lehetek kiváló szakember.	I believe I can be an excellent professional in Hungary even without foreign language skills.
Dropped: Q27	Számomra elsősorban azért fontos az angol orvosi szaknyelv ismerete, mert a tanulásom/TDK/szakdolgozati munkám során használható szakirodalom nagy része angol nyelvű.	For me, knowing EMP is primarily important because most of the literature I can use for my studies/research/thesis is in English.
Dropped: Q36	Fontos számomra az angol orvosi szaknyelv ismerete, mert gyakorló orvosként szerintem szükségem lesz rá.	Knowing EMP is essential to me because I think I will need it as a practicing doctor.
Dropped: Q39	Fontos számomra az angol orvosi szaknyelv, bár én magyar nyelvterületen szeretnék majd dolgozni.	EMP is important to me, although I plan to work in Hungary.
Dropped: Q52	Szeretnék majd orvosi szakfordítóképzésre jelentkezni a diploma megszerzése után.	After graduating, I would like to apply for a medical translator training programme.
Instrumentality **Prevention**	***Hungarian***	***English***
Q30	Fontos számomra az angol orvosi szaknyelv ismerete, mert nem szeretném, ha a nyelvtudás hiánya gátolna a tudományos munkában/ösztöndíjak elnyerésében.	Knowing EMP is important to me because I do not want a lack of language skills to hold me back in scientific work or applying for scholarships.
Q31	Fontos számomra az angol orvosi szaknyelv ismerete, mert nem szeretném, hogy az angol szaknyelvi nyelvismeret hiánya korlátozza majd a jövőbeni lehetőségeimet.	EMP is important to me because I do not want the lack of it to limit my future opportunities.

	Q32	Fontos számomra az angol orvosi szaknyelv ismerete, mert nem akarom, hogy később a kollégáim lenézzenek azért, mert nem beszélek angolul vagy nem publikálok angolul.	Knowing EMP is important to me because I do not want my colleagues to look down on me in the future for not speaking English or not publishing in English.
	Q47	Ha nem tanulnék/tanultam volna angol orvosi szaknyelvet, hátrányt szenvednék a hallgatótársaimhoz képest.	If I had not studied EMP, I would be at a disadvantage compared to my classmates.
	Q51	A tanuláshoz felhasználható segédanyagok (videók, ábrák) sokszor angol nyelvűek, és én nem akarok hátrányba kerülni amiatt, hogy nem értem őket.	Many study resources, like videos and diagrams, are in English, and I do not want to be at a disadvantage by not understanding them.
	Dropped: Q40	Csak azért tanulok/tanultam angol orvosi szaknyelvet, mert (nyelv)vizsgáznom kell(ett) belőle.	I only study(ed) EMP because I need(ed) to take a language exam.
Attitude to Learning EMP		***Hungarian***	***English***
Positive	Q*8	Szerintem hasznos lenne, ha minden orvostanhallgatónak kötelező lenne angol orvosi szaknyelvet tanulnia.	I think it would be useful if every medical student were required to learn EMP.
	Q25	Azért is kedvelem az angol orvosi szaknyelvi órákat, mert úgy érzem, az angoltudás mellett további ismeretekre is szert teszek/tettem.	I also enjoy EMP classes because I feel that, in addition to improving my English, I am gaining additional knowledge.
	Q48	Szinte természetesnek érzem, hogy angolul tanulni kell, és most a szaknyelven a sor.	It almost feels natural to me that learning English is necessary, and now it's time to learn EMP.
	Q58	Sokat teszek azért, hogy az angol szaknyelvi tudásomat fejlesszem.	I put in a lot of effort to improve my EMP skills.
	Q65	Kifejezetten élvez(t)em a szaknyelvi angolórákat.	I especially enjoy(ed) EMP classes.
	Q67	A szaknyelvi angolórák felüdülést jelentenek/jelentettek nekem a szakmai tárgyak tanulása mellett.	The EMP classes provide(d) a refreshing break from studying other professional subjects.
	Q68	Kedvelem az angol orvosi szaknyelvi órákat, mert orvosszakmai témákat érintünk.	I like the EMP classes because we cover topics related to the medical field.
Negative	Q9	Szerintem elég lenne az egyetemen az általános angol nyelvtudást fejleszteni, a szaknyelvet később is elsajátíthatja az ember.	In my opinion, it would be enough to focus on general English skills at university; one can learn EMP later on.

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Q10	Szerintem az angol orvosi szaknyelv csak latin szavakból áll, amelyeket angolul kell kiejteni.	I believe that EMP is just Latin words that need to be pronounced in English.
Q24	Azért járok orvosi szaknyelvi angolórára, mert csak ezt tudtam felvenni.	I am attending EMP classes because it was the only option I could take.
Dropped: Q23	Azért járok angol orvosi szaknyelvre, mert könnyű jó érdemjegyet szerezni.	I attend EMP classes because it is easy to get a good grade.
Dropped: Q53	Szívem szerint másik nyelvet tanulnék.	I would prefer to learn a different language.
Dropped: Q69	Közelebb áll hozzám az angol orvosi szaknyelv, mint az általános angol.	I prefer learning EMP to general English.
Dropped: Q73	Az angol szaknyelvi oktató személye, személyisége meghatározó számomra.	The personality of the EMP teacher is important to me.
L2 Anxiety	***Hungarian***	***English***
Q46	Tartok attól, hogy hallgatótársaim kinevetnek a szaknyelvi angolórán.	I am afraid my classmates will laugh at me in the EMP class.
Q70	Tartok attól, hogy a szaknyelvtanár kigúnyol a szaknyelvi angolórán.	I am worried that the EMP teacher will make fun of me in class.
Q71	Az angol szaknyelvi órán csak akkor mondok ki egy mondatot, ha biztos vagyok benne, hogy helyes a nyelvtan.	In EMP class, I only speak up if I'm sure the grammar is correct.
Q72	Az angol szaknyelvi órákon zavar, hogy magyarosnak hallom a kiejtésem.	In EMP class, it bothers me when I hear my pronunciation sound too Hungarian ('Hunglish').
Q43	Zavar, hogy a szaknyelvi angolórán hallgatótársaim jobban beszélnek angolul, mint én.	It bothers me that my classmates speak English better than I do in EMP class.
Q64	Kifejezetten szorongok a szaknyelvi angolórákon.	I feel especially anxious in EMP classes.
Q66	Nem szívesen szólalok meg az angol szaknyelvi órán.	I am reluctant to speak up in EMP classes.
Self-Confidence	***Hungarian***	***English***
Q5	Szerintem jó nyelvérzékem van angol nyelvből.	I think I have a good aptitude for English.
Q6	Szerintem bármilyen mindennapi szituációban megértetem magam angolul.	I believe I can make myself understood in any everyday situation in English.

Q7	Szerintem bármilyen szaknyelvi szituációban megértetném magam angolul.	I think I could make myself understood in any professional (medical) situation in English.
Q56	Büszke vagyok az általános angol nyelvtudásomra.	I am proud of my general English skills.
Q57	Büszke vagyok az eddig megszerzett angol orvosi szaknyelvi nyelvtudásomra.	I am proud of the EMP skills I have acquired so far.
Q63	Szeret(t)em, ha aktívan részt tudok venni a szaknyelvi órán, és sokat beszélhetek.	I enjoy(ed) being able to actively participate in EMP classes and speak a lot.
Self-Efficacy	***Hungarian***	***English***
Q44	Elég könnyűnek találom az angol orvosi szaknyelv tanulását.	I find learning EMP fairly easy.
Q45	Igyekszem kihasználni az angol nyelvű kommunikációra adódó lehetőségeket.	I try to take advantage of opportunities to communicate in English.
Q62	Ha odateszem magam, könnyen tanulom az angol orvosi szaknyelvet.	If I make an effort, I learn EMP easily.
Dropped: Q49	Az angol orvosi szaknyelv nagyon nehéz számomra.	EMP is very difficult for me.

*Q numbers are indicating the order of questions in the distributed questionnaire. Missing numbers (Q1; Q26; Q55) are open-ended questions not covered in this paper.

** In this table, we have indicated which items were excluded during the PCA in every instance of item listing.

Note. EMP = English for Medical purposes; L2 = Second Language

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