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Exploring the present and target academic English language needs of Iranian undergraduate students: a case at the Tabriz University of Medical Sciences

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Abstract

Background: The content of courses in English for specific purposes (ESP) has been largely determined on the basis of the intuitive judgments and personal preferences of syllabus designers and teachers rather than a standard needs analysis. The present study was an attempt at assessing the current English language abilities of undergraduate students majoring in the medical sciences and identifying their target needs for academic success through quantitative and qualitative methods.

Methods: The participants included 197 undergraduate students, 12 Teaching English as a Foreign Language (TEFL) teachers, and 15 content teachers from the Tabriz University of Medical Sciences, Iran. Data were collected through a target needs analysis, self-assessment questionnaires, and semi-structured interviews.

Results: Pronunciation, technical and general vocabulary knowledge, and use of bilingual dictionaries were regarded as 'important' and 'very important' target needs by the participants, though some significant differences in perceptions were found between content teachers and students. Writing skill, listening comprehension, and speaking were perceived as the weakest points in the students' current level of ability. There was also a significant difference between the perception of TEFL teachers and students in assessing the students' linguistic abilities. Furthermore, both students and TEFL teachers voiced their dissatisfaction with certain areas of ESP courses, such as an inadequate number of credits and heterogeneity of classes.

Conclusion: To improve the outcome of ESP courses, they should be designed on the basis of a realistic appreciation of all stakeholders' perceptions in the field, and they should be taught through the cooperation of both TEFL teachers and content teachers working together.

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Introduction

The emergence of English for specific purposes (ESP) courses dates back to the 1950s and 1960s; however, these courses expanded noticeably in 1970s and attracted the attention of curriculum developers, teachers, and researchers. Presently, ESP is considered an indispensable part of academic curriculums in many countries, including Iran. All Iranian university students at both undergraduate and postgraduate levels are required to take an ESP course of 2 to 3 credits, depending on the major, in addition to a 3-credit English for general purposes (EGP) course. Students majoring in medicine must pass two ESP courses for a total of 6 credits. The principal focus of these courses

is to introduce a quantity of English technical vocabulary and reading passages, and no discernable direction is given to the instructors or administrators by the Ministry of Health and Medical Education concerning the selection of material or the development of newer or more suitable material. When it comes to the implementation of ESP programs, the courses are taught by either TEFL teachers from a language department or by content teachers from subject specific departments with little or no coordination between the two.¹⁻³ Although conducting a needs analysis is the cornerstone of designing, planning, and evaluating every ESP course,^{2,4-6} the scarcity of standard and widespread needs analysis in our educational context is

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not only self-evident, but regrettably unjustifiable.

Significance of needs analysis in ESP

The process of collecting, analyzing, and evaluating different sources of information in order to meet the specific needs of learners is defined as needs analysis.⁷⁻⁹ Unlike the traditional concept of 'needs' as linguistic needs, today, in a very general sense, 'needs' in an educational context refers to different sources of information which assist learners' rapid improvement in desired areas of the target language.¹⁰ As defined by Hyland,¹¹ the term 'needs' is "an umbrella term that embraces many aspects, incorporating learners' goals and backgrounds, their language proficiencies, their reasons for taking the course, their teaching and learning preferences, and the situations they will need to communicate in." Similarly, Flowerdew⁴ emphasized the complex and multi-layered nature of 'needs,' including linguistic, communicative, and learning aspects.

Since the flourishing days of needs analysis in the 1970s, many researchers in the field of language teaching^{9,12-16} have striven to demonstrate the significance of assessing learners' needs in language learning courses for both general and specific purposes. Long⁵ argued that "ESP courses built without the aid of a needs analysis often contain too much or too little instruction to meet the learners' needs." In agreement with Long's⁵ remarks, today many practitioners in the field of ESP have affirmed that designing a course without prior analysis of needs results in a lack of selective goals leading to successful outcomes.¹⁷⁻¹⁹ Thus, as Jin et al²⁰ contended, important steps such as selecting materials, monitoring teaching and learning strategies, and evaluating outcomes can be taken if an in-depth assessment of language needs has been conducted.

Concerning the multifaceted nature of needs analysis, different approaches for assessing needs (e.g., target-situation needs analysis, present-situation needs analysis, deficiency analysis, strategy analysis, means analysis, and task-based needs analysis) have been suggested in the literature.²¹ For instance, Munby's¹³ 'Communicative Needs Processor,' a widely utilized frameworks of needs analysis in ESP, suggests the analysis of the learners' needs be conducted in terms of their communicative goals. However, this approach has been criticized for being inflexible and focusing only on the linguistic competence to meet those goals. Moreover, Hutchinson and Waters⁹ introduced an approach for needs analysis in which target needs (i.e., what a learner needs to do in the target situation) and learning needs (i.e., how a learner can acquire the language needed in such situations) are distinguished. These two main categories are further divided into certain sub-categories, with necessities, lacks, and wants considered as target needs, and learning strategies and constraints considered part of learning needs.

Generally, needs analysis works in favor of ESP teaching and learning in three major ways: 1) practitioners become reliably informed about which language skills and components should be given priority,¹⁰ 2) attention is also paid to problematic areas and weak points in current ESP praxis in terms of selected materials and methodology,⁷ and 3) needs analysis helps instructors do their best to meet the actual needs and wants of the learners rather than merely trying to meet the expectations of the administration. These advantages, recognized through the years since the early days of ESP, have encouraged many teachers and researchers to do empirical studies in this field; however, the research pool in the educational context of the country of Iran is too small, and that is why a robust framework for developing ESP courses in main academic disciplines is not still available to practitioners. The existing research studies that have conducted needs analysis for designing ESP in an Iranian context are briefly reviewed below.

Brief review of the studies on needs analysis

Although sporadic, there have been quite a few studies evaluating student needs across different disciplines at different universities. Some researchers explored the attitudes of stakeholders toward students' needs in different disciplines while others have focused on the differences among different groups of stakeholders in terms of their perceptions of student needs.

Shahini and Riazi²² conducted a comprehensive study assessing present and target academic needs of students in several academic majors, including 2030 students and 150 teachers. They found that while reading skills and good knowledge of technical vocabulary were reported as the most important needs of undergraduates, graduates perceived writing skills and conversation skills as significant requirements for academic success. However, Khanjani²³ found no significant differences in the needs of undergraduates and postgraduates in a science discipline: all reported oral communication (conversation) skills as their most significant required language area.

In 2007, Atai and Mohamadzadeh²⁴ focused on the present and target needs of graduate students majoring in the humanities. These needs were assessed from the perspectives of PhD students, TEFL teachers, and subject-specific teachers. The findings showed that the most significant needs were comprehension of lectures in subject-specific seminars in English, technical vocabulary knowledge in English, and the use of Internet. In a partially replicated study in 2011, Atai et al² evaluated the present and target academic English needs of undergraduate students of computer engineering from the perspectives of four groups of respondents. The findings indicated that written skills and language components were important. In addition, the general English proficiency levels of the students, as measured by a proficiency test and a self-assessment questionnaire, was found to be noticeably low,

foregrounding the fact that students needed more general English than highly specific academic English.

Again in 2011, Atai and Nazari²⁵ attempted to focus only on the reading comprehension needs of undergraduate students studying health information management through a triangulated approach, collecting data from TEFL teachers, content teachers, undergraduates, and graduates. Besides identifying important components of reading skills for students, the results showed that the undergraduate students' general English proficiency level, especially in terms of reading comprehension, was lower than what was required in ESP classes. In a wider geographical scope, Hejazi²⁶ studied 343 psychology students from seven major Iranian universities in various provinces at the postgraduate level. The major problems in ESP as reported by the participants were low levels of general English proficiency, lack of well-qualified ESP teachers, absence of a coherent curriculum, lack of up-to-date ESP methodology and ESP books, lack of audio-visual aids, and scarcity of real situations in Iran in which to use specialized English in the practice of psychology.

Finally, the undergraduate students of law were selected as the target group by Esfandiari.²⁷ Present and target needs were analyzed based on data collected from 218 undergraduate students, 33 graduate students, and 10 subject matter teachers. The findings revealed significant differences between student and teacher groups in terms of students' present and target needs; however, both general and technical vocabulary knowledge, along with general bilingual English-to-Persian dictionary use, were identified as the most important target needs. Furthermore, analysis of the present status of the students showed that undergraduate students of law still faced major problems in general English, thus suggesting that the development of ESP courses should draw more from general English.

As the overview above reveals, studies conducted in ESP course design in the Iranian context have focused on disparate academic disciplines (e.g., tourism, computer engineering, medicine, health information management, and psychology), and perhaps partly for that reason, they reflect somewhat inconsistent results. This, in turn, lends another layer of difficulty to making reliably sound decisions regarding ESP course design. There seems to be a pressing need for similar studies of rigorous design to be carried out on large scales in sufficiently similar academic majors if there is any hope of reaching definitive enough results to allow for ESP course planning.

The current study

Despite the long years of implementing ESP courses at all Iranian universities, it seems that desired results have not yet been achieved.¹ One primary reason may be a consistent underestimation of the value of systematic and nationwide reassessment of students' English language needs in academic and professional life. Owing to the fact

that all disciplines in medical sciences play an important role in every society's health, having an acceptable command of English is an inevitable feature of providing medical services throughout the world. Therefore, ESP courses in all academic disciplines, medical sciences in particular, should be designed with meticulous care.

The objective of the present study was to conduct an in-depth evaluation of the English language needs of undergraduate students of medical sciences from the perspectives of students, TEFL teachers, and content teachers using qualitative and quantitative research methods. The following research questions were addressed in this study:

1. What are the current academic English abilities of undergraduate students of medical sciences from the standpoint of undergraduates, TEFL teachers, and content teachers?
2. What are the target academic English needs of undergraduate students of medical sciences from the standpoint of undergraduates, TEFL teachers, and content teachers?
3. Are there any significant differences among undergraduate students, TEFL teachers, and content teachers' perceptions of undergraduates' current academic English abilities and target academic English needs?
4. What are the problems and difficulties of teaching and learning ESP as perceived by medical science undergraduates and their teachers?

Materials and Methods

Participants

Three groups from the Tabriz University of Medical Sciences participated in this study, including 197 undergraduate students, 15 content teachers, and 12 TEFL teachers. With respect to the content of the questionnaires, we chose undergraduate students who had either already passed the ESP course or were enrolled for the course for the second semester of the 2018-2019 academic year. The undergraduate students, including 84 males and 113 females in the 19-31 age range, were randomly selected from the Nursing and Midwifery, Medicine, Anesthesia, and Radiology departments. Content teachers were selected through stratified random sampling, and an attempt was made to have roughly equal number of teachers from each of abovementioned departments, as shown in Table 1. Concerning TEFL teachers, only those who had experience teaching ESP courses in the above majors were selected.

Instruments. Both quantitative (questionnaires) and qualitative (semi-structured interviews) methods were employed in this study to assess the target needs and current abilities of undergraduate students and to explore teachers' and students' perceptions toward current ESP courses and existing barriers.

Questionnaires. Three questionnaires were developed for

Table 1. Study participants

Groups	Number	Gender		Major			
		Male	Female	Medicine	Nursing & Midwifery	Anesthesia	Radiology
Undergraduates	197	84	113	38	55	51	53
Content teachers	15	11	4	4	4	3	4
TEFL teachers	12	8	4				

each group of respondents. Relying on existing theoretical frameworks^{9,11,12,14,28,29} and available questionnaires in the literature,^{2,25,30} target academic language needs and current language abilities as well as lacks and wants were explored in the questionnaires. All questionnaires were translated into Persian (participants' first language) to preclude any probable misunderstandings.

The questionnaire for undergraduate students included six sections. The first section was developed to collect certain background information such as respondents' gender, age, major, and whether or not they had passed the ESP course. The second section, consisting of 34 Likert-scale items, was designed to assess the students' current academic English language abilities. The third section included 26 Likert-scale items concerning essential language skills and components for academic success (target needs). The fourth 10-item section included multiple choice questions to probe participants' preferences and suggestions for an ideal ESP course. The fifth section evaluated students' satisfaction regarding ESP classes, teachers, and texts via 10 Likert-scale items. Finally, an open-ended question was included with the aim of eliciting more information on perceived problems in ESP classes and possible solutions-

The questionnaires for TEFL and content teachers consisted of four parts; the first three sections were basically similar to those in the student questionnaire. The fourth and fifth sections were omitted from the teachers' questionnaires since teachers were asked about difficulties of teaching ESP courses and possible solutions using semi-structured interviews.

After the questionnaires were drafted, they were piloted with a smaller sample of respondents selected randomly from all three groups (n=30); as a consequence, some items were revised, rewritten, or omitted. The reliability was checked using Cronbach's alpha. The reliability coefficient of the main sections, 1) target needs and 2) current abilities, were 0.84 and 0.81, respectively. The questionnaires were also submitted to experienced TEFL and content teachers for content validity. Items' pertinence and clarity were double checked and modifications were made to decrease irrelevancy and ambiguity.

Teacher- and self-assessment measure. The general English proficiency of the undergraduate students was assessed by the teachers and the students through a teacher- and self-assessment measure based on the Common European Framework of Reference (CEFR) standard. It describes general language ability on a six-point scale at six ordinal levels: A1 (beginner), A2 (elementary), B1

(lower intermediate), B2 (intermediate), C1 (advanced), and C2 (mastery). A brief explanation regarding required language capabilities related to each proficiency level was provided in a chart to make the selection easier for the respondents.

Interview. The interview questions were designed to triangulate and cross-validate the data collected from the questionnaires. Six questions were included in the interview for the content and TEFL teachers that were follow-up questions of the main themes addressed in the questionnaires along with questions closely related to the current condition of ESP classes at the university. The first version of the interview was piloted with four content and TEFL teachers, resulting in some modifications: some questions were added, deleted, or merged.

Procedures

Data collection took place during 2018-2019 academic year. After developing and finalizing the last version of the questionnaires, they were administered to the respondents. The student questionnaires were submitted during actual class sessions to provide them with supporting instructions and explanations in case there were any ambiguities. The teachers were given the questionnaires in their own offices at a convenient time and were interviewed immediately. Each interview session lasted 15-25 minutes and was audio-recorded.

Data analysis

Besides qualitative analysis of the data obtained from interviews and open-ended questions, we analyzed the questionnaires both descriptively and inferentially, using SPSS version 25. Descriptive statistics included absolute and relative frequency of the responses to each item, and inferential analysis was done through conducting non-parametric between-group tests (Kruskal-Wallis and Mann-Whitney) to determine if there were any significant differences among the three groups' perceptions.

Thematic analysis, the most common method for analyzing semi-structured interviews, was utilized to identify patterns of themes in the interview data. In the first phase, those parts of the interviews that pertained to our topic were transcribed. In phase two, the researchers went through the transcribed data and assigned initial codes (e.g., books, methodology, students, English proficiency, etc). Finally, certain themes (e.g., lacks, wants, problems, solutions), which were broader and involved interpretation of the codes, were identified.

Results

Students' current academic English language abilities

The first section of the questionnaire was a self-assessment collecting participants' perceptions on the undergraduate students' current academic English language skills and abilities. As Table 2 shows, the language components and skills found to be the most difficult – “can't do at

all” – by the students themselves included ‘participating in international events’ (46%), ‘writing academic papers’ (41%), and ‘asking/ answering questions in seminars’ (33%). From the TEFL teachers' perspective, the most difficult tasks were ‘asking/answering questions in seminars’ (83%), ‘using monolingual technical English dictionaries’ (67%), ‘writing academic papers’ (58%),

Table 2. Cross-tabulation results of the questionnaire - part 1

	Can't do at all			Can do with effort			Can do with help			Can do on my own		
	Ss*	TEFL Ts	Con Ts	Ss	TEFL Ts	Con. Ts	Ss	TEFL Ts	Con. Ts	Ss	TEFL Ts	Con. Ts
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Q1	15 (9.1)	0 (0)	0 (0)	63 (32.5)	7 (58.3)	5 (33.3)	81 (41.6)	1 (8.3)	7 (46.7)	38 (20.8)	4 (33.3)	3 (20)
Q2	4 (2)	0 (0)	0 (0)	45 (22.8)	4 (33.3)	8 (53.3)	79 (40.1)	8 (-66.7)	7 (46.7)	69 (35)	0 (0)	0 (0)
Q3	14 (7.1)	1 (8.3)	0 (0)	85 (43.1)	7 (58.3)	8 (53.3)	59 (29.9)	4 (-33.3)	5 (33.3)	39 (88.6)	0 (0)	2 (13.3)
Q4	38 (19.3)	2 (16.7)	0 (0)	66 (33.5)	9 (75)	9 (60)	58 (29.4)	1 (-8.3)	6 (40)	35 (17.8)	0 (0)	0 (0)
Q5	50 (25.4)	6 (50)	2 (13.3)	73 (37.1)	5 (41.7)	9 (60)	48 (24.4)	1 (8.3)	4 (26.7)	26 (13.2)	0 (0)	0 (0)
Q6	17 (8.6)	1 (8.3)	1 (6.7)	63 (32)	2 (16.7)	1 (6.7)	75 (38.1)	7 (58.3)	10 (66.7)	42 (21.3)	2 (16.7)	3 (20)
Q7	13 (6.6)	1 (8.3)	1 (6.7)	45 (22.8)	4 (34.3)	4 (26.7)	81 (41.1)	5 (42.7)	4 (26.7)	58 (29.4)	2 (20.7)	6 (40)
Q8	56 (28.4)	5 (41.7)	1 (6.7)	82 (41.6)	4 (33.3)	10 (66.7)	41 (20.8)	2 (16.7)	4 (26.7)	18 (9.1)	1 (8.3)	0 (0)
Q9	20 (10.2)	4 (33.3)	2 (13.3)	50 (25.4)	6 (50)	4 (26.7)	74 (37.6)	2 (16.7)	7 (46.7)	53 (26.9)	0 (0)	2 (13.3)
Q10	34 (17.3)	1 (8.3)	2 (13.3)	92 (46.7)	8 (66.7)	11 (73.3)	52 (26.4)	3 (25)	2 (13.3)	19 (9.6)	0 (0)	0 (0)
Q11	11 (5.6)	1 (8.3)	1 (6.7)	69 (35)	7 (58)	8 (53)	70 (35.5)	3 (25)	6 (40)	47 (23.9)	1 (8.3)	0 (0)
Q12	13 (6.6)	0 (0)	0 (0)	66 (33.5)	6 (50)	8 (53.3)	80 (40.6)	5 (41.7)	6 (40)	38 (19.3)	1 (8.3)	1 (6.7)
Q13	21 (10.7)	0 (0)	1 (6.7)	71 (36)	6 (50)	3 (20)	69 (35)	5 (41.7)	8 (53.3)	36 (18.3)	1 (8.3)	3 (20)
Q14	39 (19.8)	2 (16.7)	5 (33.3)	68 (34.5)	8 (66.7)	3 (20)	51 (25.9)	2 (16.7)	7 (46.7)	39 (19.8)	0 (0)	0 (0)
Q15	75 (40.6)	7 (58.3)	5 (33.3)	73 (38.6)	2 (16.7)	9 (60)	37 (17.8)	7 (25)	1 (6.7)	12 (3)	0 (0)	0 (0)
Q16	33 (16.8)	4 (33.3)	5 (33.3)	63 (32)	6 (50)	5 (33.3)	58 (29.4)	2 (16.7)	5 (33.3)	43 (21.8)	0 (0)	0 (0)
Q17	33 (16.8)	2 (16.7)	2 (13.3)	66 (33.5)	7 (58.3)	8 (53.3)	54 (27.4)	3 (25)	5 (33.3)	44 (22.3)	0 (0)	0 (0)
Q18	65 (33)	10 (83.3)	9 (60)	70 (35.5)	1 (8.3)	6 (40)	41 (20.8)	1 (8.3)	0 (0)	21 (10.7)	0 (0)	0 (0)
Q19	48 (24.4)	3 (25)	2 (13.3)	82 (42.6)	6 (50)	10 (66.7)	41 (20.8)	3 (25)	3 (20)	26 (13.2)	0 (0)	0 (0)
Q20	43 (21.8)	1 (8.3)	1 (6.7)	76 (38.6)	8 (66.7)	12 (80)	48 (24.4)	2 (16.7)	2 (13.3)	30 (15.2)	1 (8.3)	0 (0)
Q21	30 (15.2)	7 (58.3)	4 (26.7)	89 (45.2)	3 (25)	7 (46.7)	51 (25.9)	2 (16.7)	4 (26.7)	27 (13.7)	0 (0)	0 (0)
Q22	87 (45.2)	7 (58.3)	5 (33.3)	69 (35)	4 (33.3)	9 (60)	36 (17.8)	1 (8.3)	1 (6.7)	5 (1.5)	0 (0)	0 (0)
Q23	21 (10.7)	5 (41.7)	3 (20)	77 (39.1)	4 (33.3)	8 (53.3)	71 (36)	3 (25)	3 (20)	28 (14.2)	0 (0)	1 (6.7)
Q24	8 (4.1)	1 (8.3)	2 (13.3)	51 (25.9)	7 (58.3)	5 (33.3)	97 (49.2)	4 (33.3)	7 (46.7)	41 (20.8)	0 (0)	1 (6.7)
Q25	17 (8.6)	1 (8.3)	1 (6.7)	78 (39.6)	5 (41.7)	5 (33.3)	78 (39.6)	6 (50)	7 (46.7)	24 (12.2)	0 (0)	2 (13.3)
Q26	16 (8.1)	5 (41.7)	4 (26.7)	61 (31)	4 (33.3)	1 (6.7)	74 (37.6)	3 (25)	8 (53.3)	46 (23.4)	0 (0)	2 (13.3)
Q27	7 (3.6)	0 (0)	0 (0)	49 (24.9)	1 (8.3)	6 (40)	80 (40.6)	8 (66.7)	6 (40)	61 (31)	3 (25)	3 (20)
Q28	12 (6.1)	0 (0)	0 (0)	50 (25.4)	10 (83.3)	2 (13.3)	70 (35.5)	1 (8.3)	8 (53.3)	65 (33)	1 (8.3)	5 (33.3)
Q29	16 (8.1)	0 (0)	1 (6.7)	42 (21.3)	4 (33.3)	1 (6.7)	84 (42.6)	7 (58.3)	11 (73.3)	55 (27.9)	1 (8.3)	2 (13.3)
Q30	36 (17.8)	8 (66.7)	2 (13.3)	63 (33)	3 (25)	3 (20)	66 (32)	1 (8.3)	10 (66.7)	32 (17.3)	0 (0)	0 (0)
Q31	38 (22.3)	7 (58.3)	6 (40)	86 (42.1)	4 (33.3)	7 (46.7)	55 (27.4)	1 (8.3)	1 (6.7)	18 (8.1)	0 (0)	1 (6.7)
Q32	19 (9.6)	0 (0)	0 (0)	61 (31)	6 (50)	5 (33.3)	85 (43.1)	6 (50)	7 (46.7)	32 (16.2)	2 (0)	3 (20)
Q33	56 (28.4)	7 (58.3)	5 (33.3)	67 (34)	4 (33.3)	6 (40)	47 (23.9)	1 (8.3)	3 (20)	27 (13.7)	0 (0)	1 (6.7)
Q34	24 (12.2)	0 (0)	2 (13.3)	56 (28.4)	8 (66.7)	5 (33.3)	74 (37.6)	4 (33.3)	5 (33.3)	43 (21.8)	0 (0)	3 (20)

Ss: Students; TEFL T: Teachers of English as a Foreign Language; Con. T: Content teachers.

and 'participating in international events' (58%). The content teachers also ranked 'asking/answering questions in seminars' (60%) as the most difficult task for students, followed by 'translating technical texts from Persian to English' (40%).

A point worthy of note here is the fact all three groups seemed to agree that the skills such as 'writing academic papers', 'participating in international events', and 'asking/answering questions in seminars' were posing the most difficulties for students, or that students are currently lack efficacy in these areas. Another interesting point concerns the fact that all teachers in both groups (100%) were of the opinion that most reading sub-skills (e.g. items 1, 2 and 12) along with the ability to use general English dictionaries (e.g. items 27 and 28) or translating from English to Persian (item 32) did not pose major challenges for the students. They believed almost all undergraduates were capable of handling these without serious difficulty. However, the students themselves (though not an overwhelming majority of them) did not share the same confidence regarding those skills.

Other items ranked by students as the second most difficult – 'Can do with effort'– included 'writing summaries of technical texts' (47%), 'understanding lectures in English' (45%), and 'scanning the technical texts' (42%). The TEFL teachers regarded as difficult tasks such as 'note taking while reading English technical texts' (75%), 'writing summaries of technical texts' (67%), and 'preparing oral summaries of the technical texts' (67%), which they believed the students might be able to handle only with some effort. The content teachers also found tasks such as 'writing summaries of technical texts' (73%), 'preparing oral summaries of the technical texts' (80%), and 'critical reading of the texts' (67%) as particularly demanding for students and the content teachers felt students might be able to accomplish these only with a lot of endeavor.

The three groups of participants had differing opinions regarding the skills or sub-skills that the students could handle with just a little help. The two exceptions here were the ability to 'use bilingual technical dictionaries', which 43% of the students, and 73% of content teachers found as not really demanding for the students, and the ability to 'distinguish important points from less important ones in English texts', which 58% of TEFL teachers and 67% of content teachers agreed were relatively easy for the students.

In addition, as illustrated in Table 2, both groups of teachers believed that students could do only a small number of items on their own while it was not the case from the perspective of the students themselves. However, 'reading and comprehending the technical English texts' (students 21%, TEFL teachers 33%, content teachers 20%), 'understanding the relationships between ideas'(students 29%, TEFL teachers 21%, content teachers 40%), and 'using general bilingual English to Persian dictionaries'

(students 31%, TEFL teachers 25%, content teachers 20%) were three items which were perceived as rather easy skills by the members of all three groups with a frequency percentage higher than 20% based on the fact that most items were considered by 0% of respondents to be easy.

In order to examine if there were any differences in the perceptions of the three groups regarding the current state of the undergraduate students' language competence, as shown in Table 3, a Kruskal-Wallis test was used with the results revealing the existence of significant differences among the three groups ($P=0.009$ [significant at $P<0.05$]).

Moreover, three Mann-Whitney tests were also conducted to establish between which two groups the difference was significant (Table 4). The results showed that students' opinions were significantly different from those of the TEFL teachers ($P=0.004$), as were the differences between the opinions of the two groups of teachers ($P=0.017$); however, there was no significant difference between students' and content teachers' opinions ($P=0.235$).

Additionally, to have a wide-range view of the current situation, the students and the teachers were asked to evaluate the general English proficiency of the students using the CEFR rubric. As Table 5 demonstrates, a majority of TEFL teachers (83%) placed the students at the A2 band (elementary), while 47% of content teachers and 30% of students chose the B1 band (lower intermediate). Notably, the C2 level (mastery) was not picked by any teachers as representing the proficiency level of the students, and only 3% of students placed themselves at this level. Generally, undergraduate students of medical sciences were seen as low proficiency language users and were generally placed at the A2-B1 bands (beginner to lower intermediate), although both the content teachers and the students rated the general English abilities of the undergraduates slightly higher compared to the TEFL teachers.

Table 3. Difference in groups' perceptions regarding students' current abilities

Chi-Square	9.46
df	2
Asymp. Sig.	0.009

Table 4. Results of Mann-Whitney tests (current abilities)

Groups	N	Mean Rank	Sum of Ranks	Asymp sig.
Ss	197	107.9	21263	0.004
TEFL Ts	12	56.8	682	
Total	209			
Ss	197	107.88	21252	0.235
Con. Ts	15	88.37	1325	
Total	212			
TEFL Ts	12	9.92	119	0.017
Con. Ts	15	17.27	259	
Total	27			

Ss: Students; TEFL T: Teachers of English as a Foreign Language; Con. T: Content teachers.

Table 5. Results of general proficiency assessments

	A1 (beginner)	A2 (elementary)	B1 (lower intermediate)	B2 (intermediate)	C1 (advanced)	C2 (mastery)
Ss	17.3	21.9	30.1	21.9	5.6	3.1
TEFL Ts	16.7	83.3	0	0	0	0
Con. Ts	0	40	46.7	13.3	0	0

Ss: Students; TEFL T: Teachers of English as a Foreign Language; Con. T: Content teachers.

Students’ target academic English language needs

This section, comprising 26 questions, was designed to elicit participants’ opinions about the significance of English language skills in students’ academic success. As Table 6 illustrates, the students regarded as ‘important’ and ‘very important’ language skills and components such as ‘knowledge of general vocabulary’ (58%), ‘knowledge of technical vocabulary’ (47%), ‘pronunciation’ (47%), ‘using bilingual technical dictionaries (English to Persian)’ and ‘note taking while reading English texts’ (41%). TEFL teachers, however, seemed to place more emphasis on general English abilities as determining factors in students’ academic success, with 92% emphasizing ‘using bilingual general dictionaries (English to Persian),’ 75% ‘taking class examinations in English,’ 67% ‘pronunciation,’ 67%

‘using bilingual general dictionaries (Persian to English),’ and 67% ‘knowledge of general vocabulary.’ Content teachers, on the other hand, seemed to believe students’ academic success mostly hinged on their abilities in ‘using bilingual general dictionaries (English to Persian)’ (80%), ‘pronunciation’ (67%), ‘reading technical English texts on the internet’ (67%), and ‘translating technical English texts to Persian’ (67%).

There was also a congruence between the two groups of the teachers as to which subskills might be considered ‘not important’ for undergraduate students. Of 26 subskills listed in this section, nine were mentioned as ‘not important’ by TEFL teachers and 11 of the 26 items were mentioned as ‘not important’ by content teachers. No subskill was unanimously judged as ‘not important’

Table 6. Cross-tabulation results of the questionnaire part 2

	Not Important			Rather Important			Important			Very Important		
	Ss	ESP Ts	Con. Ts	Ss	ESP Ts	Con. Ts	Ss	ESP Ts	Con. Ts	Ss	ESP Ts	Con. Ts
Q1% (Fr)	18 (9.1)	0 (0)	0 (0)	32 (16.2)	5 (41.7)	4 (26.7)	76 (38.6)	4 (33.3)	8 (53.3)	71 (36)	3 (25)	3 (20)
Q2% (Fr)	27 (13.7)	4 (33.3)	3 (20)	43 (21.8)	3 (25)	4 (26.7)	70 (35.5)	3 (25)	4 (26.7)	57 (28.9)	2 (16.7)	4 (26.7)
Q3% (Fr)	18 (9.1)	0 (0)	4 (26.7)	44 (22.3)	8 (66.7)	6 (40)	73 (37.1)	2 (16.7)	2 (13.3)	62 (31.5)	2 (16.7)	3 (20)
Q4% (Fr)	39 (19.8)	6 (50)	8 (53.3)	51 (25.9)	3 (25)	4 (26.7)	51 (25.9)	2 (16.7)	2 (13.3)	56 (28.4)	1 (8.3)	1 (6.7)
Q5% (Fr)	31 (15.7)	0 (0)	6 (40)	55 (27.9)	6 (50)	6 (40)	67 (34)	5 (41.7)	3 (20)	44 (22.3)	1 (8.3)	0 (0)
Q6% (Fr)	22 (11.2)	0 (0)	6 (40)	48 (24.4)	4 (33.3)	4 (26.7)	81 (41.1)	7 (58.3)	3 (20)	46 (23.4)	1 (8.3)	2 (13.3)
Q7% (Fr)	33 (15.3)	5 (37.3)	7 (39.3)	54 (29.9)	5 (47)	3 (30.3)	77 (39.1)	2 (15.7)	4 (23.7)	33 (15.7)	0 (0)	1 (6.7)
Q8% (Fr)	38 (19.3)	0 (0)	7 (46.7)	74 (23.9)	1 (8.3)	0 (0)	79 (36.5)	9 (75)	6 (40)	40 (20.3)	2 (16.7)	2 (13.3)
Q9% (Fr)	33 (16.8)	2 (16.7)	5 (33.3)	53 (26.9)	5 (41.7)	7 (46.7)	72 (36.5)	4 (33.3)	0 (0)	39 (19.8)	1 (8.3)	3 (20)
Q10% (Fr)	33 (16.8)	0 (0)	0 (0)	53 (26.9)	3 (25)	6 (40)	70 (35)	8 (66.7)	8 (53.3)	41 (21.3)	1 (8.3)	1 (6.7)
Q11% (Fr)	27 (13.7)	5 (41.7)	5 (33.3)	63 (32)	3 (25)	7 (46.7)	72 (36.5)	3 (25)	1 (6.7)	35 (17.8)	1 (8.3)	2 (13.3)
Q12% (Fr)	36 (18.3)	0 (0)	0 (0)	63 (32)	3 (25)	5 (33.3)	60 (30.5)	7 (58.3)	9 (60)	38 (19.3)	2 (16.7)	1 (6.7)
Q13% (Fr)	18 (9.1)	3 (25)	4 (26.7)	35 (18.3)	4 (33.3)	5 (33.3)	73 (37.6)	4 (33.3)	4 (26.7)	71 (35)	1 (8.3)	2 (13.3)
Q14% (Fr)	26 (13.2)	8 (66.7)	6 (40)	46 (23.4)	2 (16.7)	3 (20)	63 (32)	1 (8.3)	1 (6.7)	62 (31.5)	1 (8.3)	5 (33.3)
Q15% (Fr)	14 (7.1)	0 (0)	1 (6.7)	67 (34)	1 (8.3)	2 (13.3)	60 (30.5)	7 (58.3)	8 (53.3)	56 (28.4)	4 (33.3)	4 (26.7)
Q16% (Fr)	2 (1)	0 (0)	0 (0)	20 (10.2)	1 (8.3)	1 (6.7)	61 (31)	3 (25)	7 (46.7)	114 (57.9)	8 (66.7)	7 (46.7)
Q17% (Fr)	4 (2)	0 (0)	0 (0)	25 (12.7)	1 (8.3)	1 (6.7)	61 (31)	6 (50)	6 (40)	107 (54.3)	5 (41.7)	8 (53.3)
Q18% (Fr)	6 (3)	0 (0)	0 (0)	30 (15.2)	2 (16.7)	3 (20)	69 (35)	8 (66.7)	10 (66.7)	92 (46.7)	2 (16.7)	2 (13.3)
Q19% (Fr)	19 (9.6)	0 (0)	0 (0)	39 (19.8)	0 (0)	1 (6.7)	77 (39.1)	11 (91.7)	12 (80)	62 (31.5)	1 (8.3)	2 (13.3)
Q20% (Fr)	24 (12.2)	0 (0)	7 (46.7)	54 (27.4)	2 (16.7)	5 (33.3)	64 (32.5)	8 (66.7)	2 (13.3)	55 (27.9)	2 (16.7)	1 (6.7)
Q21% (Fr)	14 (7.1)	1 (8.3)	0 (0)	49 (24.9)	0 (0)	5 (33.3)	81 (41.1)	5 (41.7)	7 (46.7)	53 (26.95)	6 (50)	3 (20)
Q22% (Fr)	11 (5.6)	0 (0)	0 (0)	43 (21.8)	0 (0)	2 (13.3)	78 (39.6)	4 (33.3)	7 (46.7)	65 (33)	8 (66.7)	6 (40)
Q23% (Fr)	20 (10.2)	0 (0)	2 (13.3)	50 (25.4)	3 (25)	3 (20)	68 (34.5)	7 (58.3)	9 (60)	59 (29.9)	2 (16.7)	1 (6.7)
Q24% (Fr)	13 (6.6)	0 (0)	0 (0)	33 (16.8)	0 (0)	2 (13.3)	72 (36.5)	7 (58.3)	3 (20)	79 (40.1)	5 (41.7)	10 (66.7)
Q25% (Fr)	54 (27.4)	2 (10.7)	1 (6.7)	59 (29.9)	7 (60.3)	9 (60)	49 (24.9)	1 (10.3)	3 (20)	35 (17.8)	2 (18.7)	2 (13.3)
Q26% (Fr)	20 (10.2)	0 (0)	0 (0)	33 (16.8)	1 (8.3)	3 (20)	74 (37.6)	7 (58.3)	10 (66.7)	70 (35.5)	4 (33.3)	2 (13.3)

Ss: Students; ESP T: Teachers of English for specific purposes; Con. T: Content teachers.

by students for their academic success, and the difference in the perception of students and teachers regarding the significance of particular subskills was evident in certain areas. Interestingly, items such as 'participating in international events' (students 13%, TEFL teachers 67%, content teachers 40%), 'writing academic papers' (students 20%, TEFL teachers 50%, content teachers 53%), and 'taking notes while listening to English lectures' (students 15%, TEFL teachers 37%, content teachers 39%), were perceived to play even more significant roles in academic success by the students themselves rather than the teachers.

As seen in Table 7, the Kruskal-Wallis test was used to analyze the differences in the three groups' opinions regarding the students' needs, and significant differences were observed in the three groups' perceptions ($P < 0.05$).

In addition, Mann-Whitney tests were used to provide a better understanding of the inter-group differences, and the results point to significant differences between content teachers and students (Table 8).

Lacks and Wants

Student appraisal of the current state of ESP courses

This section was designed to assess the students' satisfaction/dissatisfaction with the current state of ESP classes. The 'general English language proficiency of the teacher' (45%), and the 'technical English language proficiency of the teacher' (39%) were items most students were satisfied with, as well as the item for 'teacher's emphasis on the reading skill' (39%). However, students expressed discontent with certain items, including inadequate emphasis on the listening skill (40%), classes being overcrowded (37%), and 'teacher's emphasis on the writing skill' (32%).

Participant suggestions for improving ESP classes

In addition to the issues incorporated into the previous

section of the questionnaire, there was another section designed to elicit the three groups' suggestions for how to improve the ESP course and, ideally, the outcomes. A large number of the participants in all three groups were of the opinion that language learning activities are better conducted in small groups (students 45%, TEFL teachers 83%, content teachers 80%; notably, higher percentages of teachers were in favor of this particular item compared to the percentage of students by almost two to one). For the adequacy of the number of credits devoted to ESP courses, almost all teachers (TEFL teachers 100% and content teachers 89%) found the number of credits to be insufficient, while over half of students (58%) felt that the current number of credits was sufficient. Participants in all three groups did not find the third or the fourth year to be an appropriate time to offer ESP courses, with the majority believing that such courses were more useful in the second or third semesters. Half the students (50%), and most content teachers (73%) suggested that ESP courses should be offered in the course of two semesters, while most TEFL teachers (76%) found it more beneficial to have ESP courses offered during all four years of undergraduate studies. A large majority of participants in all three groups (students 67%, TEFL teachers 100%, and content teachers 80%) believed that it would be best for the classes to be held twice a week.

As for prioritizing language skills that need to receive attention in ESP classes, most participants in all three groups picked 'reading' as the top priority (students 57%, TEFL teachers 75%, and content teachers 87%). Notably, neither teacher group foregrounded 'listening', 'speaking', or 'writing' in ESP classes, while students highlighted the importance of 'listening' (20%), 'speaking' (21%), and 'writing' (18%) alongside the reading skill. Regarding the orientation of ESP classes toward either specialized/technical (ESP) or general English (EGP), most students (76%) and content teachers (67%) were inclined to focus on technical English, while TEFL teachers (60%) were largely in favor of general English.

More than half the students (67%), together with the majority of EFL teachers (74%) and content teachers (59%) were of the opinion that ESP classes were best taught by both content and TEFL teachers. The next question, which asked about the effect of teachers speaking English in class on students' learning yielded interesting findings; while 40% of the students found this to be very important in enhancing their learning, only 7% of content teachers and 30% of the TEFL teachers felt this aspect was 'very important' in their responses. This may indicate that students learn from the language model that teachers provide. The last item on the questionnaire asked if subject lessons should be taught through English books and sources, and the overwhelming majority of the participants (students 60%, TEFL teachers 92%, content teachers 80%) believed that English sources should be used for teaching subject lessons.

Table 7. Difference in groups' perceptions regarding students' target needs

Chi-Square	6.19
df	2
Asymp. Sig.	0.045

Table 8. Results of Mann-Whitney tests (target needs)

Groups	N	Mean Rank	Sum of Ranks	Asymp sig.
Ss	197	105.65	20813	.529
TEFL Ts	12	94.33	1132	
Total	209			
Ss	197	109.30	21533	.016
Con. Ts	15	69.67	1045	
Total	212			
TEFL Ts	12	16.79	201	.100
Con. Ts	15	11.77	176	
Total	27			

Ss: Students; TEFL T: Teachers of English as a Foreign Language; Con. T: Content teachers.

Interview results

Our interview protocol was comprised of six main questions, which both content and TEFL teachers answered in similar ways. For instance, when asked about obstacles hindering proper implementation of ESP programs, both groups were in agreement that students did not have the necessary English proficiency when entering the course, and, as a result, lacked the required motivation or self-confidence to perform well in the class. "In my own classes, the students are not able to make the sentences with the simplest structures such as 'simple present'... some of them feel so embarrassed in the class and fail to effectively convey their meaning," one TEFL teacher noted. Both teacher groups also had similar ideas as to what sources to use in ESP classes and which language skills to focus on: both emphasized the importance of English sources, rather than translated versions, and prioritized the reading skill over others in ESP classes. TEFL teachers also highlighted the importance of practicing writing and speaking in class, which largely omitted by the content teachers.

There were differences in the two groups' responses that are worth mentioning. Content teachers seemed to have a more intimate understanding of the nature or sources of the problems in the ESP courses taught by content teachers. On more than one occasion, for example, the teachers' low general English proficiency was blamed for the students' apparent carefree style when trying to learn/use English. For example, a content teacher stated, "When students hear their teacher consistently and also obviously mispronouncing the technical and simple non-technical words such as 'analysis', they consequently downgrade the significance of correct pronunciation in the process of language learning."

To improve the current ESP situation in our context, both teacher groups stressed the need for increased systematization in compiling and presenting the ESP courses. TEFL teachers emphasized that subject-specific ESP materials should be developed, and the current teaching methodology should undergo reconsideration and revision; that is, ESP courses should be taught in more communication-oriented ways. Content teachers, on the other hand, emphasized that more care should be exercised in ESP teacher selection from among subject experts, and that in-service training might prove very useful for these teachers to enhance their English proficiency. Both groups of teachers agreed that there should be cooperation between content and TEFL teachers in selection of materials as well as planning and implementation of ESP programs.

However, when asked about the ways in which the teachers themselves were handling their ESP classes, a majority of teachers in both groups acknowledged that they were essentially teaching their classes in a traditional way, focusing on reading and translation at the expense of pronunciation, speaking and writing. For instance, one of

the content teachers noted, "As we have learnt English in traditional classes and have not been offered any training courses during all these years, we have, in practice, known no better than adopt the same methodology." In other words, even though teachers are aware of the fact that excessive focus on the reading skill might not be an ideal way of enhancing undergraduate students' technical English proficiency, they lack the training to change the current situation for the better.

Discussion

Regarding students' current level of abilities, 'listening', 'speaking', and 'writing' were unanimously perceived to be the most consequential areas in academic English. Generally, congruence in the opinions of the three groups was most prominent on the intermediary scales ('can do with a little help' or 'can do with effort'), rather than the two ends of the scales ('can do on my own' or 'can't do at all'). While few teachers considered the students to be capable of carrying out the tasks mentioned in those items (e.g., 2,3,16, and 17) on their own, anywhere from 20% to 80% of students believed they did have the required skills to successfully manage these tasks on their own. This may be an indication that teachers are underestimating students' abilities. This has to be considered alongside the insight gained through interviews that most teachers complained about students' poor general English background and that they felt students are lacking self-confidence. However, this general lack may blind teachers to certain language-related capabilities that students might indeed possess – or at least they believe they possess – to the extent that teachers may actually not be giving students the chance to succeed in certain areas. If this is the case, teachers may themselves be contributing to students' low self-confidence.

There is also some evidence suggesting that in certain areas the teachers might actually overestimate the students' level of proficiency (e.g., items 1 and 12). Although this happens far less frequently, the fact that it exists might be enough to make teachers think twice when they take certain abilities for granted when deciding on materials or activities for ESP teachers. This may be considered as an instance of teachers having an unrealistic assessment of students' abilities, or it might be discussed along with difficulties associated with the heterogeneity of the ESP classes, which was also brought up in the teacher interviews.

Another divergence in opinion had to do with the difference in the estimation of students' capabilities that existed between content teachers and TEFL teachers. There were instances of both content teachers' and TEFL teachers' estimates being closer to the self-assessment of the students, especially on the intermediary scales. However, similar to the findings of some recent research studies,^{2,25,27} the overall balance was tilted towards content teachers in this particular regard, which might be

attributed to a host of factors.

Admittedly, content teachers have far more contact with students in other classes, and thus they come to develop a more realistic understanding of their capabilities. However, there are other factors which may be legitimate reasons for this apparent imbalance. For instance, fewer TEFL teachers than content teachers thought students could handle item 23 (translating technical texts from Persian to English). This perception may have more to do with a lower standard set for English translation by the content teachers; on the other hand, it may be that TEFL teachers are perhaps so used to the command of English displayed by English-major students that they have come to develop unrealistic expectation of ESP students. This case and several others like it, we believe, are indicative of the pressing need for cooperation and collaboration between content and TEFL teachers in planning and implementing ESP programs, as suggested by the experts of the field.^{9,12}

The data collected on target needs also revealed interesting insights. Once again, the highest degree of correspondence in participants' opinions was mostly on the intermediary scales, with all three groups in agreement about the significance of vocabulary knowledge, using dictionaries of different kinds, etc, which are traditionally associated with the reading skill.

Looking at the bigger picture, TEFL teachers were found to hold some divergent views by emphasizing more general aspects of language and also those required for productive skills (e.g., the use of Persian to English dictionaries). Moreover, opposite to the findings of a research study done in this field², it also seems that teachers sometimes underestimated target needs of the students and selected items (e.g., participating in international events) as an insignificant need whereas not all students felt the same way.

Similar to reports in the literature,²⁷ the students' opinions regarding target needs were found to significantly diverge from those of the content teachers but converged towards those of TEFL teachers, who were found to have a similar appraisal of the significance of certain skills, especially those related to production (e.g., writing and speaking). The reason for this might lie in the fact that the students are well aware that to have any academic success in future, their English language proficiency needs to develop both receptive and productive skills. The fact that the content teachers concentrate primarily on the reading skill underscores the urgent need for closer cooperation between TEFL and content teachers in compiling ESP materials, and prioritizing the skills and subskills to be incorporated into those materials.

Conclusion

All the participants agreed on the following barriers and issues that exist currently in ESP classes. If these barriers

are addressed, the result could hopefully lead to enhanced quality of the classes and beneficial outcomes.

1. There is not a balanced focus on all language skills – all participants agreed that primacy should be given to the reading skill; however, they believed this should not be carried so far as to neglect the other productive skills of speaking and writing.
2. Generally the participants feel there are not enough ESP courses and they are not taught frequently enough.
3. Students' overall English proficiency is collectively believed to be low and is often blamed for the problems and failures of English classes. If remedial courses were provided, students could be more prepared and in a better position to tackle the higher-level content of ESP courses. This could be accomplished by either adding to the number of courses or enriching the content of EGP courses.
4. The vast majority of participants noted the absence of ESP textbooks specifically designed by qualified experts for particular majors. The absence of such textual sources often results in teachers using materials to work on in class which were not designed for educational purposes in the first place.
5. There were disparities between both groups of teachers' perceptions and those of the students in certain areas. There were instances of teachers overestimating or underestimating student capabilities, which could be a major factor contributing to students not having their needs met in ESP classes – hence the general discontent with the outcomes of such classes. Students' current abilities, needs and wants should be accommodated in planning and implementing ESP courses since 'the extent to which perceptions are shared directly influences questions of language policy, curricula, and pedagogy'.³¹
6. Finally, most participants agreed that there is a need for TEFL and content teachers to cooperate in both designing and implementing ESP courses. The need for such collaboration, mostly ignored at our university with the exception of the Faculty of Nursing and Midwifery at the graduate level, is noted as a vital tool by other researchers and curriculum developers.^{2,3}

Limitations and Suggestions for Further Research

One of the limitations of the present research was that no class observation was incorporated into the design, which could have provided more reliable insights. In addition, the relatively small sample size and the limited number of majors included in our study are other limitations. It is suggested that similar studies be conducted in a wider context and at other medical universities using the same methodology, including a larger sample size and a greater number of majors and disciplines.

Ethical approval

All the participants were assured that the information collected through the questionnaires and interviews would be treated as confidential and used for research purpose only.

Competing interests

The authors declare that there is no conflict of interest.

Authors' contributions

All authors met the criteria of authorship based on the recommendations of the international committee of medical journal editors.

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