English for Medical Purposes in Iran: Needs Analysis, Challenges, and Prospects

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Abstract: The present study set out to gain insights into the status of English for specific purposes (ESP) in Iranian medical schools with five primary aims including deciphering the main challenges of teaching ESP, analyzing medical students' needs and lacks, evaluating ESP practitioners, examining the efficacy of ESP courses, and analyzing the proper time of offering ESP courses. Data were gathered through questionnaires, observations, and interviews with medical students, ESP teachers, and medical professionals. The findings suggested that inappropriate materials, low motivation and self-confidence of the students, and heterogeneous ESP classes were the main challenges of teaching ESP to medical students. In addition, while the participants believed the four skills: listening, speaking, reading, and writing were imperative for medical professionals, they were not practiced systematically in ESP courses. Moreover, it was found that the ESP teachers did not apply the basic principles of ESP teaching, and the courses were not as efficient as expected. Finally, the participants expressed contradictory views on the proper time for offering ESP courses. The findings contribute to the understanding of ESP principles to be incorporated in ESP classes.

Keywords: English for Medical Purposes, English for Specific Purposes, Medical Students, Needs Analysis

Introduction

Mastering the English language is instrumental to achieve professional goals in almost all fields. The English language plays a prominent role in training well-qualified medical staff. Medical students are required to get ideas and information about medicine by reading plenty of English science and technology materials, listening to lectures given in English, talking with clients and professionals in real situations, viewing English multimedia resources, and writing in English.

Moreover, health tourism, which has developed in Iran these days, highlights the importance of English learning for medical staff. According to the deputy head of the Iran Health Tourism Promotion Association, the health tourism revenue totaled $1.2 in 2018. In 2019, the visiting of health tourists in Iran was the highest on record (*Health Tourists*, 2019).

Conducting a needs analysis is an integral part of developing ESP courses. ESP course developers must be aware of the needs of learners since the aim of ESP is to help learners use English in professional and academic contexts (Basturkmen, 2010; Dudley-Evans & St. John, 1998; Hutchinson & Waters, 1987). As Basturkmen (2010) states, curriculum developers can design effective courses through needs analyses. Likewise, most ESP scholars such as Arslan and Coskun (2014) and Tatzl (2013) have reinforced Long's (2005) argument that language courses without needs analyses do not provide academic support or selective and detailed goals to fulfil the students' needs. Finally, we need

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to consider the recent needs of ESP learners because these days, our world is developing and changing very fast and most traditional standards no longer suit today's creative and technological age.

Significance of the Study

ESP teachers and students face certain challenges in the medical field. First, modern ESP issues have brought rising expectations of the courses. These courses are required to care about both the language which is essential for academic and professional success and various modern-day skills for learners, including autonomous learning, problem-solving, critical thinking, reasoning, and goal setting. Students' insufficient level of English proficiency can be another significant challenge in ESP courses, which may make the courses less successful in meeting students' language needs. The problem gets worse when they intend to study or work abroad, or when they get involved with research and academia. Consequently, investigating the efficiency of ESP courses can be of great significance for guiding the design and optimization of the courses.

Moreover, as ESP researchers, curriculum designers, material developers, and teachers, we are supposed to be conversant with fundamental principles of ESP learning, teaching, and evaluation, and to consider ESP teaching as a separate division of English language teaching (ELT). However, despite a large number of studies on ESP teaching in Iranian settings, there is a paucity of research investigating whether the principles of teaching ESP are noticed in EMP classes (Khalili & Tahririan, 2020; Nezakatgoo & Behzadpoor, 2017), which is one of the foci of the current study.

Therefore, conducting needs analysis studies that investigate various aspects of students' needs can be of practical value for different stakeholders. The outcome of the present study might guide all the involved stakeholders in ESP. The study would have guidelines for curriculum designers to redesign ESP courses, material designers to develop appropriate ESP materials, ESP teachers to design their courses efficiently, and ESP learners to be better learners and make use of their ESP courses to meet their needs. The study sought to answer the following specific research questions:

Research Question One: What are the main challenges of teaching ESP to medical students?

Research Question Two: What are the medical students' needs and lacks concerning language skills and tasks?

Research Question Three: To what extent do the ESP teachers follow the underlying principles of ESP teaching?

Research Question Four: To what extent have the existing ESP courses fulfilled the needs of medical students?

Research Question Five: When should ESP courses be offered?

Methodology

Participants

Purposive sampling was used to select the participants. Medical students, ESP teachers, and medical professionals were the participants of the current study. First, 140 male and female students, with an age range of 20-30, studying in the Isfahan University of Medical Sciences and Islamic Azad University of Khorasgan participated in the study. They were in their fifth and sixth semesters in medical and dental faculties. They were from different cities and ethnic groups in Iran. A questionnaire was given to all of the students, they were observed in their ESP courses, and 36 of them were interviewed.

The second group of the participants was 18 ESP teachers including 8 males and 10 females all teaching ESP courses to medical students. They were Ph.D. graduates (n: 5), Ph.D. candidates (n: 5), and MA holders (n: 8). The teachers majored in TEFL (n: 15), English literature (n: 1), and English translation (n: 2). They were all native speakers of Persian with varying years of experience, ranging

from 3 to 30 years, in teaching ESP to medical students. They were interviewed, asked to complete two questionnaires, and observed in their ESP courses.

The inclusion of medical professionals as the third group of participants was significant to identify the objective and perceived needs. Eleven medical specialists including 4 physicians and 7 dentists were interviewed by the researchers. They were included in the target needs analysis part of the study and in examining the challenges of ESP learning.

Instruments

Questionnaires

The researchers devised two study-specific questionnaires, used in different phases of the study. The first one, called the teachers' evaluation questionnaire, was administered to evaluate the performance of ESP practitioners and to examine the efficacy of the tasks and their methodology. The thirty-one-item questionnaire, which was developed by the researchers, focused on some general points that are recommended for all English courses and especially in ESP courses. For the items which measured general points, several books, in particular, Lewis and Hill's *Practical Techniques for Language Teaching* (1992) were examined thoroughly. For the matters related to ESP courses, several sources, including Basturkmen's *Ideas and Options in English for Specific Purposes* (2006), Basturkmen's *Developing Courses in English for Specific Purposes* (2010), Dudley-Evans' *Developments in English for Specific Purposes* (1998), Hyland's *English for Academic Purposes* (2006), and Paltridge and Starfield's *The Handbook of English for Specific Purposes* (2012) were consulted. It was a self-evaluation questionnaire given to the teachers to evaluate their performance. It was translated into Persian and before its administration, it was discussed with three experienced ESP practitioners to check the items' relevance and content validity. Following that, it was piloted with a representative sample of the corresponding participants, and the Cronbach's alpha test was used to check its reliability and internal consistency. The reliability of the questionnaire was estimated with the coefficient greater than 0.9, which shows high internal consistency.

The second questionnaire, called the course evaluation questionnaire, was administered to evaluate the efficacy of ESP courses. The questionnaire, developed by the researchers, included 27 items focusing on several points that are recommended for ESP courses. The questionnaire was divided into 5 subscales, namely ESP specific (8 questions), class-related (7 questions), institution-related (3 questions), skills (7 questions), and overall (2 questions) evaluation items. In addition to the 27 questions prepared on Likert scale, 2 questions were included at the end of the questionnaire to ask when ESP courses should be offered and to score the 4 macro skills on a scale of 1 to 5. Following a similar procedure as for questionnaire 1, the item's relevance, content validity, and reliability were checked.

Table 1

Course Evaluation Questionnaire Reliability

|	Cronbach's alpha	Alpha based on standardized items	N of items
Questionnaire 2	.961	.960	27
ESP	.912	.917	8
Class	.921	.923	10
Institution	.923	.926	3
Skills	.919	.922	4
Overall	.944	.945	2

Interviews

Three semi-structured interviews were formulated to explore ESP students', teachers' and medical professionals' perspectives. The questions of the first interview were based on different aspects of ESP

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where students are among the main stakeholders. There were six categories of questions as presented in Figure 1.
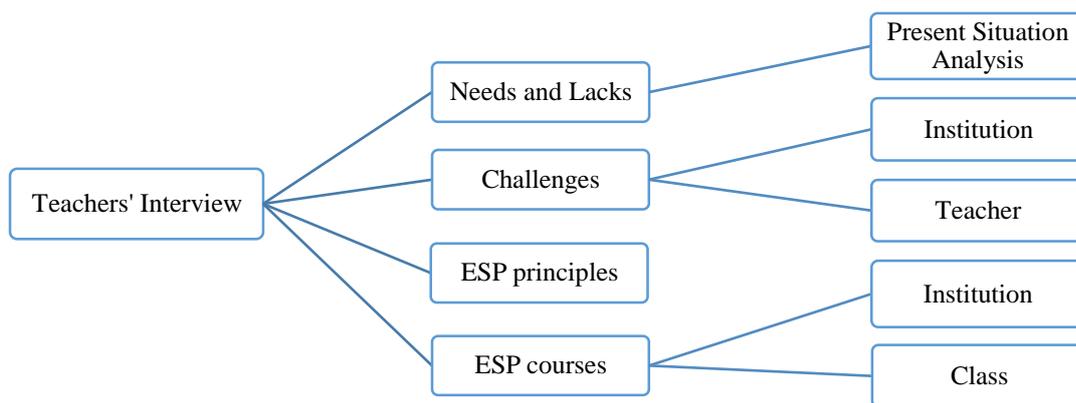
Figure 1

Students' Interview Outline
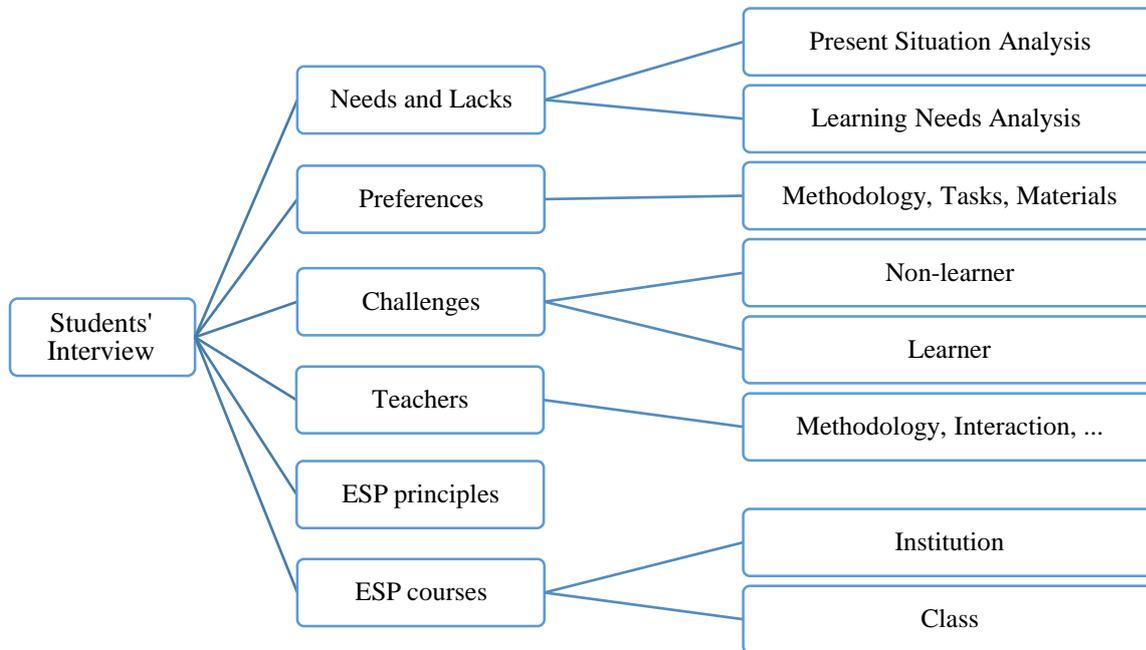
The second interview was developed to explore ESP teachers' perspectives. The outline is illustrated in Figure 2.
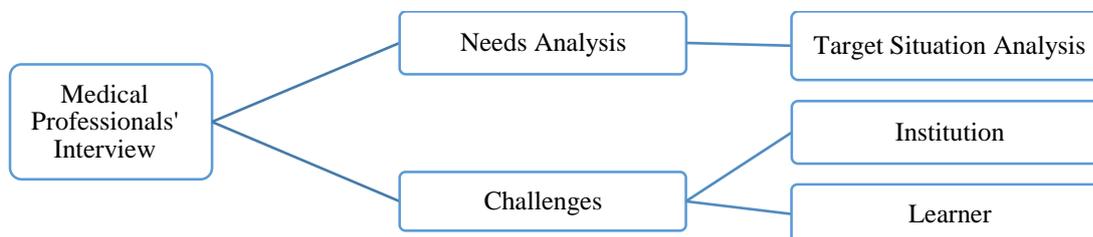
Figure 2

Teachers' Interview Outline

Finally, the Third interview was developed to examine medical professionals' views. The outline is demonstrated in Figure 3.

Figure 3

Medical Professionals' Interview Outline

Observations

Fifteen sessions of ESP courses were observed by the researchers. Around one hour of each class was observed. To supplement data from other sources, the "Field notes" method was utilized to collect data. According to Ary et al. (2010), in field notes, the observer records whatever he or she has heard or seen and there are two components: the "descriptive" and "reflective" parts. In the descriptive part, the observer details "the setting, the people and their reactions and interpersonal relationships, and accounts of events" (p. 435). In the reflective part, the observer includes personal impressions or feelings and comments on what is observed. Field notes were organized by writing down the descriptive information in one column and the observer's comments in another column next to the descriptive notes. They were later analyzed, which provided valuable information for the study, particularly for examining the challenges of ESP teaching and learning (research question 1), following the underlying principles of ESP (research question 3), and evaluating the effectiveness of ESP courses in fulfilling the needs of medical students (research question 4).

Data Analysis

The study took advantage of both quantitative and qualitative approaches. To summarize the patterns of questionnaire answers, descriptive statistics were utilized for each questionnaire. Data analysis involved determining the frequencies and percentages of responses to the questions of the questionnaires. The Statistical Package for Social Sciences (IBM SPSS Statistics 26) was used for the statistical operations of the questionnaires.

Even though analyzing qualitative data seems overwhelming, it is manageable if broken into main stages. Creswell (2013) suggests the "data analysis spiral". Following the data collection, they should be organized and managed. Data analysis is conducted through three stages of 1) familiarizing and organizing, 2) coding and reducing, and 3) interpreting and representing (Ary et al., 2010, p. 481).

The researchers followed the same stages in analyzing the qualitative data derived from observations and interviews. At the first stage, familiarization, and organization, the researcher should be immersed in the data. Therefore, through reading and rereading notes from observation field notes and interview answers, the researchers became familiar with the data. The data were put into a form for later analysis and to evade potential bias, words were transcribed directly. During transcriptions, some memos or notes, reflecting the researchers' thoughts (called a "reflective log"), were written in the margins. Then, the notes were reviewed and a list of various information was made.

The next stage was coding and reducing. Through coding concepts are developed from raw data. In the study, the data were first sorted by identifying some units of meaning through reading and rereading all the data. Following that, items were coded (labeled) to start finding similarities and differences in the data. However, some initial codes were modified later. After all the data were coded, the researchers put all the units with similar codes together. Next, some categories were formed by reducing the codes. Afterward, some categories could be linked to create themes. The major categories

(themes) were chosen based on the research questions. As Ary et al. (2010) pointed out, "Organizational categories typically could have been anticipated and may have been established before data collection" (p.486).

Figure 4

Data Pyramid (Ary et al., 2010, p. 486)
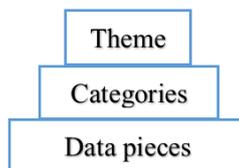
Finally, the data were interpreted based on the personal feelings of the researchers. However, the interpretation was not a figment of imagination but supported by the data. At last, the data were presented by reporting themes through descriptive detail and tables.

Results

Questionnaires

Questionnaire 1 (Teachers' Evaluation Questionnaire)

Questionnaire 1 was given to the ESP teachers as a kind of self-evaluation. The results are illustrated in Table 2.

Table 2

Frequency Percentile of Questionnaire 1 Items (ESP Teachers' Responses)

To what extent did you focus on the following points in your ESP class?	Not at all	A little	To some extent	To a moderate extent	To a great extent
1. Preparing for the classes	0	0	0	33.3	66.7
2. Subject matter knowledge	0	22.2	11.1	61.1	5.6
3. Effective responses to the students' questions	0	0	22.2	38.9	38.9
4. Caring for the students' learning	0	11.1	0	27.8	61.1
5. Effective use of course materials	0	0	22.2	27.8	50
6. Attempt to make effective transitions between the content	0	0	11.1	61.1	27.8
7. Attempting to link the content with each other	0	0	27.8	27.8	44.4
8. Interacting with the student	0	11.1	0	38.9	50
9. Reacting to what the students say	0	0	5.6	50	44.4
10. Attempting to involve the students in the learning process	0	11.1	5.6	50	33.3
11. Assessment and evaluation	0	11.1	11.1	50	27.8
12. Motivation	0	0	5.6	44.4	50
13. Attempting to promote students' motivation	0	0	16.7	50	33.3
14. Tasks given to the students	0	11.1	27.8	50	11.1
15. Attempting to elicit knowledge and information from the students	0	11.1	38.9	27.8	22.2
16. Introducing learning strategies	0	5.6	22.2	33.3	38.9
17. Interesting and varied teaching	0	16.7	5.6	33.3	44.4

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18. Attempting to create a relaxed and enjoyable learning environment	0	0	16.7	38.9	44.4
19. Attention to the students' language levels	0	11.1	11.1	66.7	11.1
20. Effective use of technology	5.6	0	55.6	38.9	0
21. Concern regarding the students' needs and difficulties	0	0	22.2	55.6	22.2
22. Correcting the students' mistakes	0	11.1	11.1	61.1	16.7
23. Providing sufficient linguistic input	0	0	22.2	72.2	5.6
24. Sufficient opportunities for interaction	0	11.1	16.7	66.7	5.6
25. Exposing students to their target discourse communities	0	5.6	72.2	22.2	0
26. Practice of the genres	0	16.7	55.6	27.8	0
27. Providing supplementary materials	0	16.7	22.2	44.4	16.7
28. Using authentic materials and tasks	0	16.7	5.6	66.7	11.1
29. Requiring pair/group work	11.1	16.7	33.3	33.3	5.6
30. Assigning individual tasks	0	5.6	33.3	38.9	22.2
31. Obliging the students to be prepared for the next session	0	0	11.1	55.6	33.3

According to Table 2, the teachers believed that most of the items were focused on in their classes. The greatest score is seen in Question 1, which examined ESP practitioners' level of preparation for their classes. They also stated that they were highly motivated to teach ESP (Question 12). Other factors that were carefully considered by the ESP teachers were reacting to what the students say (Question 9) and caring for students' learning (Question 4). However, the majority of the participants mentioned that pair or group work (Question 29) was not focused enough. Similarly, the ESP teachers did not seriously consider the practice of genres (Question 26), exposing students to their target discourse communities (Question 25), effective use of technology (Question 20), and acquiring subject matter knowledge (Question 2).

Regarding the items that investigated ESP principles (Questions 21, 25, 26, 27, and 28) (Basturkmen, 2010), it was found that ESP teachers did not pay enough attention to these points as they did to the general ones. ESP teachers stated that even though they focused on general principles of teaching ELT, they did not carefully consider the underlying principles of teaching ESP mentioned in the questionnaire.

Questionnaire 2 (The Course Evaluation Questionnaire)

Students' section

To obtain the results of the second questionnaire, first, the students were asked to evaluate their ESP course based on the questions included in the questionnaire. Tables 3 and 4 show the results.

Table 3

Frequency Percentile of Questionnaire 2 Items (Students' Responses)

The extent to which my ESP class …….. .	Not at all	A little	To some extent	To a moderate extent	To a great extent
ESP SUBSCALE					
1. Developed learner autonomy in the field	2.9	13.6	40	27.1	16.4
2. Revealed subject-specific language use	0	10	32.9	27.9	29.3
3. Developed target performance competencies	3.6	15.7	26.4	28.6	25.7
4. Satisfied the students' immediate and target needs and difficulties	8.6	17.1	30	24.3	20
5. Exposed students to their target discourse communities	5.7	13.6	21.4	37.1	22.1
6. Provided information about genres in the discourse communities	3.7	15.6	37	21.5	22.2

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7. Provided situations often related to the students' future specializations	7.9	16.4	22.9	32.1	20.7
8. Provided the necessary specialized vocabularies	0	12.9	28.1	30.2	28.8
CLASS-RELATED SUBSCALE					
9. Taught underlying knowledge	0.7	13.6	34.3	27.1	24.3
10. Fostered critical awareness	8.6	22.3	33.1	18.7	17.3
11. Improved the students' motivation for studying English	7.9	14.3	26.4	25	26.4
12. Provided sufficient linguistic input	8.6	11.4	22.1	32.1	25.7
13. Had appropriate pace	3.6	15.7	25	30	25.7
14. Had adequate group/pair work	5.7	13.6	29.3	26.4	25
15. Had adequate individual work	2.2	8.1	26.7	31.1	31.9
INSTITUTION-RELATED SUBSCALE					
16. Had adequate class hours	6.4	11.4	15.7	32.9	33.6
17. Had adequate devoted credits	8.6	7.9	13.7	38.8	30.9
18. Had appropriate number of students	2.1	4.3	14.3	43.6	35.7
SKILLS SUBSCALE					
19. Met the students' needs for listening skills	8.6	20	26.4	26.4	18.6
20. Met the students' needs for speaking skills	10.7	17.9	29.3	22.1	20
21. Met the students' needs for reading skills	4.3	20.7	25	26.4	23.6
22. Met the students' needs for writing skills	8.6	20	28.6	22.1	20.7
23. Met the students' needs for communication skills	5.7	17.9	33.6	26.4	16.4
24. Met the students' needs for problem-solving skills	7.2	16.5	35.3	24.5	16.5
25. Developed strategic competence	2.1	16.4	30.7	28.6	22.1
OVERALL SUBSCALE					
26. Was interesting	12.9	10	20.7	24.3	32.1
27. Was in general effective	8	12.3	13.8	33.3	32.6

Table 4

Questionnaire 2 Central Tendency (Students' Responses)

Subscale	ESP	Class	Institution	Skills	Overall
Mean	3.52	3.52	3.85	3.32	3.61
Mode	3	3	4	3	5

According to Tables 3 and 4, the students believed that their ESP course was useful to some or a moderate extent. The highest mean score was found in the institution-related subscale and was followed by overall, class-related, ESP, and skills subscales. Based on Table 4, the majority of the students believed that overall, their ESP course was effective and interesting (Mode: 5). Most of the students stated that the institution-related factors were satisfactory to a moderate extent (Mode: 4). The items related to the class, ESP, and language skills were emphasized in the courses to some extent (Mode: 3).

Through the sum of scales 4 (to a moderate extent) and 5 (to a great extent), five questions with the highest scores were identified. In response to Question 18, 79.3 % of the students indicated that their ESP class had an appropriate number of students. Second, 69.7% of the respondents pointed out that their ESP courses had adequate devoted credits (Question 17). Following that, 66.5% of the participants held the view that their ESP courses had adequate class hours (Question 16). Fourth, 65.9% of the students believed that their ESP course was in general effective (Question 27). Finally, 63% of the respondents stated that their ESP course had adequate individual work (Question 15). On the other hand, the 5 questions with the lowest scores were Questions 10, 24, 20, 22, and 23.

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Teachers' section

Questionnaire 2 was also given to the ESP teachers to evaluate their courses. Tables 5 and 6 show the results.

Table 5

Frequency Percentile of Questionnaire 2 Items (Teachers' Responses)

The extent to which my ESP class …….. .	Not at all	A little	To some extent	To a moderate extent	To a great extent
ESP SUBSCALE					
1. Developed learner autonomy in the field	0	16.7	50	27.8	5.6
2. Revealed subject-specific language use	0	16.7	33.3	44.4	5.6
3. Developed target performance competencies	0	27.8	27.8	38.9	5.6
4. Satisfied the students' immediate and target needs and difficulties	0	0	61.1	27.8	11.1
5. Exposed students to their target discourse communities	0	11.1	55.6	33.3	0
6. Provided information about genres in the discourse communities	0	16.7	61.1	22.2	0
7. Provided situations often related to the students' future specializations	0	5.6	61.1	33.3	0
8. Provided the necessary specialized vocabularies	0	0	16.7	61.1	22.2
CLASS-RELATED SUBSCALE					
9. Taught underlying knowledge	0	38.9	22.2	33.3	5.6
10. Fostered critical awareness	16.7	16.7	38.9	27.8	0
11. Improved the students' motivation for studying English	0	11.1	5.6	50	33.3
12. Provided sufficient linguistic input	0	0	27.8	55.6	16.7
13. Had appropriate pace	0	11.1	50	27.8	11.1
14. Had adequate group/pair work	22.2	38.9	11.1	27.8	0
15. Had adequate individual work	0	0	22.2	66.7	11.1
INSTITUTION-RELATED SUBSCALE					
16. Had adequate class hours	22.2	50	16.7	11.1	0
17. Had adequate devoted credits	22.2	33.3	16.7	27.8	0
18. Had appropriate number of students	12.5	25	18.8	25	18.8
SKILLS SUBSCALE					
19. Met the students' needs for listening skills	44.4	33.3	16.7	5.6	0
20. Met the students' needs for speaking skills	27.8	33.3	5.6	33.3	0
21. Met the students' needs for reading skills	0	0	22.2	38.9	38.9
22. Met the students' needs for writing skills	61.1	16.7	16.7	5.6	0
23. Met the students' needs for communication skills	27.8	11.1	27.8	33.3	0
24. Met the students' needs for problem-solving skills	16.7	27.8	27.8	27.8	0
25. Developed strategic competence	0	0	27.8	22.2	50
OVERALL SUBSCALE					
26. Was interesting	0	16.7	55.6	27.8	0
27. Was in general effective	0	11.1	61.1	27.8	0

Table 6

Questionnaire 3 Central Tendency (Teachers' Responses)

Subscale	ESP	Class	Institution	Skills	Overall
Mean	3.36	3.35	2.57	2.80	3.13
Mode	3	4	2	1	3

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As can be seen, the teachers chose the middle values more than the extremes. Therefore, considering the mean score was a reasonable choice of data analysis. The highest mean scores were related to items 25 (the course developed strategic competence), 21 (the course met the students' needs of reading skills), 8 (the course provided necessary specialized vocabularies), 11 (the course improved students' motivation for studying English), 12 (the course provided sufficient linguistic input), and 15 (the course had adequate individual work).

On the other hand, the lowest mean scores were seen in items 22 (the course met the students' needs of writing skills), 19 (the course met the students' needs of listening skills), 16 (the course had adequate class hours), 14 (the course had adequate group/pair work), and 20 (the course met the students' needs of speaking skills).

According to Table 6, the highest mean score was found in the ESP-related subscale and was followed by class-related, overall, skills, and institution-related subscales. The majority of the teachers believed that the class-related factors were followed in their courses to a great extent (Mode: 4). Most of the teachers stated that the ESP-related principles were observed to some extent (Mode: 3). They believed that their course was effective and interesting to some extent (Mode: 3). Most of those surveyed indicated that the institution-related factors were not good enough (Mode: 2). Finally, they reported that most of the skills-related items were not well-practiced in ESP courses (Mode: 1).

Questionnaire 2 (Follow-Up Questions)

The students and ESP teachers were asked to answer two follow-up questions in the final part of Questionnaire 2. First, they were surveyed to find out the appropriate time for offering ESP courses. The responses of the two groups are presented in Table 7.

Table 7

Questionnaire 2 Follow-Up Question 1

When should ESP courses be offered?	Participant	Frequency	Percent
Before specialized courses	Students (N=132)	28	21.2
	Teachers (N=15)	3	20
After specialized courses	Students (N=132)	22	16.7
	Teachers (N=15)	6	40
Together with specialized courses	Students (N=132)	82	62.1
	Teachers (N=15)	6	40

Based on Table 7, while the majority of the students suggested that ESP courses be offered together with specialized courses, most of the teachers responded that ESP courses should be offered either after or together with specialized courses.

The second follow-up question asked the students and ESP teachers to score the 4 macro skills on a scale of 1 to 5, with 5 being the most important and 1 being the least important. The results of the participants' responses to this question are set out in Table 8.

Table 8

Questionnaire 3 Follow-Up Question 2

Skill	Participant	The least important			The most important		
		1 (%)	2 (%)	3 (%)	4 (%)	5 (%)	Mode
Writing	Students (N=137)	4 (2.9)	23 (16.8)	40 (29.2)	29 (21.2)	41 (29.9)	5
	Teachers (N=17)	0	4 (23.5)	0	9 (52.9)	4 (23.5)	4
Speaking	Students (N=137)	2 (1.5)	11 (8)	25 (18.2)	41 (29.9)	58 (42.3)	5
	Teachers (N=17)	0	3 (17.6)	4 (23.5)	8 (47.1)	2 (11.8)	4
Listening	Students (N=134)	4 (3)	8 (6)	24 (17.9)	44 (32.8)	54 (40.3)	5

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	Teachers (N=17)	0	2 (11.8)	8 (47.1)	5 (29.4)	2 (11.8)	3
Reading	Students (N=137)	6 (4.4)	5 (3.6)	17 (12.4)	34 (24.8)	75 (54.7)	5
	Teachers (N=18)	0	0	0	2 (11.1)	16 (88.9)	5

According to Table 8, the students believed that in order of importance, reading, speaking, listening, and writing, respectively, were the skills they needed to develop. Like the students, ESP teachers believed that reading was the most important skill to practice in ESP classes. Unlike students, the te12=o0pp9ujhgfhhgfdsaaachers believed that in order of importance, after reading, writing, speaking, and listening were the important skills for medical students.

Interviews and Observations

Students' Section

When to Offer ESP Courses (Students' Views)

The findings of the interviews validated the results obtained from Questionnaire 2 in that the majority of the students declared it was better to offer ESP courses together with specialized courses. They mentioned that there were several benefits and drawbacks when ESP courses are offered before, after, or together with specialized courses.

A number of the students thought ESP courses were better to be offered before specialized courses. They believed through ESP, they would gain a general familiarization with their field, which could be a kind of introduction to future specialized courses. They stated ESP courses were very effective if they included related terminology aiding the understanding of the common medical Latin words. However, they believed it could be achieved only if teachers had adequate content knowledge. Moreover, it was found out that some content teachers assumed students knew some technical terms and did not define them in specialized courses. They expected students to know English equivalents of technical terms; however, the students did not know many of them. Another advantage of offering ESP courses before specialized courses was that students' schedules were not as busy as later terms and they could spend more time studying ESP.

If ESP was offered together with specialized courses. They believed ESP and specialized courses could reinforce each other and lead to a thorough understanding of concepts presented in both courses. They stated when the two courses were presented together, students could make associations and find commonalities between them, which could save time. Consequently, students would pay more attention to ESP and find its importance in their field. However, they acknowledged ESP had to be together and *related* to specialized courses. For instance, together with neurology lessons, related ESP courses should be presented. In addition, the participants pointed out having ESP courses before or after specialized courses might not be much effective because if ESP was offered before specialized courses, students would forget the useful related content and due to poor subject knowledge, students would lose their motivation.

Some of the students felt ESP courses had to be offered after specialized courses. They expressed having ESP courses after specialized courses leads to a better understanding of ESP. Moreover, since students are familiar with technical terms and procedures, a great deal of time is saved. In addition, since students are engaged in practical training after specialized courses, it would be a good idea to have ESP to add variety to the courses. Students also stated if they had ESP after specialized courses, they could get better scores in ESP exams! Finally, some of the students suggested that ESP 1 be offered before specialized courses and ESP 2 after them.

ESP Teachers' Section

Language Skills Needs

Almost all of the teachers believed that all 4 skills had to be practiced in ESP courses; however, it was not possible due to several constraints, particularly inadequate time. They said reading and writing were more significant in academic contexts and listening and speaking in work settings. They also noted speaking and listening could improve students' motivation and confidence. In addition, since a lot of students intended to immigrate, improving oral skills was particularly important to them. Concerning writing, the teachers felt paragraph, essay, and e-mail writing was really useful for medical students. In addition to the 4 macro skills, they pointed out translation skills could sometimes be very effective.

Teaching Challenges

Some teaching challenges arose from inappropriate materials. Teachers were not satisfied with the obsolete books considered for ESP courses. They mentioned since they were required to cover certain books, they could not work on more useful materials. They also noted that some challenges stem from ESP teachers' knowledge and training. They pointed out teachers did not have adequate training in their education. Moreover, they believed cooperation between ESP teachers and medical professionals could result in more promising outcomes. Sometimes, lack of harmony and cooperation among ESP teachers themselves led to dissatisfaction among students.

A group of challenges originated from learners. Some teachers thought the classes were not that fruitful due to students' poor motivation and there was not enough time to motivate them. Moreover, co-educational classes were sometimes hindering, due to students' shyness and low self-confidence, which was quite obvious in the practice of oral skills. Sometimes, students' main focus was the test and score rather than learning the language.

Finally, teachers declared certain institutional factors beyond the control of students and teachers that led to challenges in teaching ESP. For one thing, the classes were large and heterogeneous, which brought about several problems in teaching. Next, students' schedules were really busy and did not let them spend adequate time for their ESP courses. Last but not least, it was found that most ESP courses were taught by adjunct lecturers who were not paid enough to meet even their basic needs. Therefore, teachers were not highly motivated to spend adequate time getting well prepared for the ESP courses.

Teaching Principles and Methodology

ESP teachers mentioned several points that led to better ESP teaching. First, despite the abovementioned challenges, they were interested in teaching ESP and tried to be well-prepared for their classes. This was confirmed by the results obtained from class observations and Questionnaire 1 indicating that the teachers were adequately prepared for classes. Second, study skills were practiced to some extent, which was effective for students' learning. The students also declared that study skills, like speed reading and technical terms analysis, were really useful in their ESP classes though they wished it had been paid more attention. Third, up-to-date supplementary materials and multimedia software were used in their classes once in a while. But when implemented, courses were more dynamic and students were more interested. Finally, through some speaking tasks, students were encouraged to get engaged in-class activities. However, based on the interviews and class observations, it was found that these tasks were very limited.

The teachers also reported several drawbacks in their teaching methodology and observing ESP principles. Like the questionnaires, students' interviews, and class observations, the teachers stated that genres were not practiced and students were not that much exposed to their target discourse communities. Some teachers pointed out that genres were not practiced and target discourse

communities were not introduced because neither the teachers were sufficiently familiar with them nor the materials help in introducing them. Moreover, the teachers indicated that no needs analysis is usually conducted in ESP courses and teachers just follow the textbooks and some goals suggested in curriculums. In addition, it was found that materials and given tasks were not authentic, very few supplementary materials were practiced, and classes were mostly teacher-centered.

Course Evaluation

Several institution- and class-related strengths and weaknesses of ESP courses were mentioned by the ESP teachers. Not surprisingly, most of the weaknesses were related to institutions, and most of the strengths were related to ESP courses. Like students, ESP teachers declared that classes were well organized and fully equipped. Therefore, they could run their classes comfortably and integrate technology into their courses. Unlike the students, the teachers believed the time was very limited and the number of credits was inadequate. They thought it was unrealistic to achieve all the desired goals in this limited time. Similar to the results of the students' interview, the teachers reported ESP credits were not properly distributed throughout the semesters. For instance, some teachers thought the distance between ESP courses and the real context in which ESP was used was a lot, which underestimated the importance of ESP. In terms of the provided curriculum developed for medical students, they thought reading was overemphasized in the curriculum, which left no room for practicing other skills.

When to Offer ESP Courses

The teachers were also surveyed about the appropriate time of offering ESP courses. Unlike students, the majority of the teachers believed ESP courses had better be offered after specialized courses. A few teachers believed ESP was better to be offered before specialized courses since it could be an introduction to specialized courses. Moreover, as students are not much busy with other courses, it could be the best time of offering ESP. Some teachers assumed if ESP were offered together with specialized courses, ESP lessons were reinforced by specialized courses, and vice versa.

However, most of the teachers felt ESP had to be offered after specialized courses due to some reasons. First, they mentioned when the students had familiarity and background knowledge of the content, they could study ESP with a deep understanding. Second, some teachers believed students could not learn the content and language at the same time; therefore, they had to get acquainted with the subject matter first and the language next so that students would focus more on the language than the content. Third, they believed if ESP were presented after specialized courses, students would understand it better and would be more motivated to study it. Finally, they stated since ESP could help students in research and real professional needs, it would be more practical to offer ESP after specialized courses.

Medical Professionals' Section

The main aim of recruiting medical professionals was to gather information about what learners need to do in the target situation and to identify the objective perceived needs of medical students. Like the students and ESP teachers, they believed all four language skills were essential to medical students. Medical students' perceived needs in the target situation are summarized in the following.

First, all of the interviewed doctors acknowledged that reading and writing skills are significant in the academic and professional lives of medical students. They noted that medical students need to improve their reading skills to read up-to-date medical articles, sourcebooks, news, and online sources. They need to read a lot at a minimum time; therefore, knowing certain strategies and study skills can be of great help and lead to learners' autonomy. The participants stated that writing is also important for medical research and international medical publications. They wished, at least, paragraph writing had been practiced in their ESP courses. Moreover, reading and writing clear medical reports were found to be important to medical practitioners, especially in the case of working abroad.

In addition, the participants highlighted the important role that oral skills play in the lives of today's students. They mentioned that these days, a lot of students want to immigrate to other countries to continue their studies or work. Therefore, communicative skills are particularly important for medical doctors and they need to practice several skills. First, comprehension and fluency in speaking are particularly important. Second, colloquialisms in speaking and medical idioms are important and doctors need to know layman's terms in addition to technical terms. Third, fluency should be improved to empathetically acquire information from patients and present it to them. Fourth, in the case of working abroad, cultural interaction is a must. Fifth, how to ask questions and elicit information from patients is significant. At the same time, doctors need to know how to give accurate medical instructions to the patients. Sixth, nonverbal communication is very important in the work setting; therefore, medical professionals need to get familiar with paralinguistic features as well. Finally, the participants pointed out that due to developments in medical tourism in Iran, it is significant for all medical students to develop their oral skills more than in the past.

Discussion

Challenges of Learning and Teaching ESP

The participants mentioned several challenges that got in the way of achieving the goals and objectives of EMP courses. First, they believed that plenty of challenges arose from inappropriate materials. They reported that their ESP book was old, difficult, boring, unattractive, and irrelevant to their specialized courses. These results are consistent with most related ESP research, which found ESP materials inappropriate and insufficient (Ghafar & Sawalmeh, 2023, Khorvash & Koosha, 2015, Nezakatgoo & Behzadpoor, 2017; and Tavakoli & Tavakol, 2018). Moreover, not including technological features such as multimedia software incorporated into books resulted in a lower students' activity engagement (Khalili et al., 2015)

Second, both ESP teachers and students declared that students' low motivation was the main problem in ESP courses. In their study, Davoudi-Mobarakeh et al. (2014) reported that ESP students' total motivation and interest were significantly lower than EGP students. Likewise, in the current study, several students stated that they had a high motivation to learn ESP at first but since the courses were not effective enough, they gradually got discouraged. Moreover, as Khosroshahi and Farrokhi (2013) pointed out, to grow students' intrinsic motivation, students' priorities should be taken into account in designing courses and materials. However, as found in the present study, neither material developers nor ESP practitioners paid adequate attention to students' needs and wants.

Third, the participants stated that the students' anxiety and self-confidence highly affected their performance in oral skills. For instance, despite their high language proficiency and fluency, the main factor why the students rarely participated voluntarily in speaking tasks was their low self-confidence. Sadighi and Dastpak (2017) found 'fear of making mistakes', 'fear of negative evaluation', and 'lack of vocabulary knowledge' as sources of speaking anxiety among Iranian students. Moreover, in our study, it was found that students' low self-confidence was sometimes attributed to co-ed classes. This is in line with Abdolalizadeh (2010) and Ebrahimi and Yarahmadzehi (2015) indicating that despite several advantages of coeducational settings, single-sex classes were found to be superior in following academic goals with less distraction.

Heterogeneity of classes was another challenge teachers faced in ESP classes and it was found that they were seldom well-prepared in their training to meet this challenge. Participants stated that this heterogeneity posed problems like ineffective teaching and learning. These results agree with Alijanian's (2012) findings reporting that although heterogeneous classes are a major problem in Iranian EFL classes, with proper training, this heterogeneity can be viewed as an opportunity to encourage students to learn from each other and improve students' social skills.

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Medical Students' Needs and Lacks in Terms of Language Skills

Regarding language skills, it was found that except for reading, other skills were not paid adequate attention in ESP courses. The results are in agreement with those obtained by Khorvash and Koosha (2015), Mazdayasna and Tahririan (2008), and Nezakatgoo and Behzadpoor (2017). The overemphasis of reading is most probably because different stakeholders, like the participants of the present study, consider reading as the most significant skill to practice in ESP courses. Accordingly, almost all ESP textbooks published in Iran are reading-based. However, prioritizing reading as the most important skill does not mean that other skills can be neglected.

Speaking was found to be the main lack and difficulty of medical students. First, the students believed that since speaking cannot be practiced individually outside the classroom, classes should be held in English, students should be given opportunities to speak in English, and English speaking tasks are welcomed. Afshar and Asakereh (2016) came to a similar conclusion and maintained that Iranian students have problems in speaking due to the rare opportunity to practice speaking in contexts outside the classroom. Second, the students were not satisfied with the employed techniques and tasks and reported that more interesting and effective speaking tasks could be practiced in their ESP courses. Finally, like other studies which concluded that Iranian EFL teachers pay little attention to speaking skills (Azizifar et al., 2010), the students stated that despite its importance, there was little practice of speaking in their ESP courses.

While most students had problems with listening skills, it received scant attention in ESP courses. First, some ESP teachers believed that most students had difficulty in listening as they had not had any listening practice at school. Therefore, they thought it would be ineffective to practice listening in ESP since students' listening skills were poor and the time of ESP courses was limited. However, as found in class observations and interviews, today's medical students' levels of general English proficiency, particularly in oral skills, are much better than past because most of them have learned English in language institutes in addition to the school. Second, as listening usually holds a low rank in needs analysis studies, it is not paid enough attention in ESP courses. In the present study, unlike ESP teachers and students, the medical professionals emphasized the importance of listening in developing the communicative skills required for all doctors. Similarly, several ESP experts highlighted the significance of listening in ESP courses (Dudley-Evans & St. John, 1998; Zohoorian, 2015). More recently, scholars have emphasized the importance of practicing listening in ESP courses because of improvements in technology and students' changing needs in this area (Cheraghi & Motaharinejad, 2023; McDonough, 2010). In the present study, the participants reported that classrooms were well-equipped and could take advantage of audiovisual facilities. Therefore, we can conclude that listening was not focused on in our ESP courses since ESP teachers and students did not recognize its importance in today's medical contexts. Finally, participants, especially the ESP teachers, assumed practicing listening in ESP was demanding and time-consuming. This is in line with Kavaliauskiene (2011) indicating that listening is a challenging skill in ESP courses, which requires a lot of time and practice because ESP listening needs high-level skills relevant to the field and much specific vocabulary and knowledge of discipline required for successful comprehension (Goh, 2012; Likaj, 2015).

The participants stated that while developing writing skill was important to medical students, students had difficulty in this skill. They admitted that there was not sufficient time to work on this skill but the students and medical professionals wished, at least, paragraph writing had been practiced in their ESP courses. It was found that medical professionals perceived the importance of writing more than medical students and ESP teachers. The results are in accord with the study conducted by Khorvash and Koosha (2015) and Hyland (2013).

Principles of ESP Teaching

The third research question examined the extent ESP teachers follow the underlying principles of ESP teaching. The results obtained from the interviews and observations revealed that only to a limited extent were the students' needs and difficulties considered in our EMP courses.

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Additionally, target discourse communities were not sufficiently introduced and genres were not practiced. The ESP teachers might not have fully understood the importance of genre practice in ESP courses. However, one key factor that distinguishes ESP from EGP classes is considering target discourse communities and genres and ESP teachers should make use of genre-based approaches in designing ESP courses and materials (Basturkmen, 2014). Some teachers pointed out that genres and target discourse communities were not practiced because teachers were not familiar with them and materials did not help in introducing them. Moreover, as Massouleh and Jooneghani (2012) argue, teachers might feel overwhelmed to see themselves as genre analysts and teachers. They may not see themselves as discourse analysts and may consider it as "research", which is not the business of "teaching". However, according to Dudley-Evans and St. John (1998), one of the key roles of ESP practitioners is to be a researcher to investigate the genre, the language, and the skills.

Finally, the results are in keeping with previous studies indicating that our ESP courses are mainly teacher-centered (Atai & Nazari, 2011; Kashef et al., 2014). This compromises the central tenet of learner-centeredness in ESP.

Course Evaluation

When asked to evaluate their ESP course, several strengths and weaknesses were mentioned by the students and ESP teachers. The strengths and weaknesses were either institutions- or class-related. There were similarities and discrepancies in results obtained from the students and teachers.

It was found that the classes were comfortable since they were spacious and well equipped, and there were not too many students in each class. In their study, Hedayati and Marandi (2014) reported lack of facilities as a main reason for not using technology in Iranian EFL classes. They mentioned several facility constraints, such as total non-availability of computers and technological tools, no access to the Internet, or poor quality of equipment and internet connection, none of which was found in the current study. Second, the participants stated that their heterogeneous classes led to problems such as ineffective teaching and learning for all students, difficulty in selecting materials, and inadequate classroom engagements, which was discussed above. Finally, most of the teachers were satisfied with the students' level of general English proficiency. This finding is contrary to previous studies which have suggested that ESP students' level of general English proficiency is low (Khorvash & Koosha, 2015; Moslemi et al., 2011; Nezakatgoo & Behzadpoor, 2017). A possible explanation for this might be that more and more students, particularly those who are accepted to medical schools, are learning English at language institutes.

However, there were some discrepancies in the students' and teachers' evaluation of ESP courses. First, unlike the students, teachers believed that most of the weaknesses were institution-related and most of the strengths were class-related. Moreover, the teachers believed time was very limited and the number of credits was inadequate. They thought it was unrealistic to achieve all the desired goals in this limited time. Unlike the teachers, students stated that the number of ESP credits and amount of time were satisfactory and most of them thought that class time could be used more efficiently doing activities relevant to their academic and professional needs. Other drawbacks of ESP courses included not practicing on all 4 skills, inadequate technical terms, technology integration, and materials, all of which were discussed before.

When to Offer ESP Courses

Several pros and cons of offering ESP before, together with, or after specialized courses were reported. The majority of the students declared it was better to offer ESP courses together with specialized courses as ESP and specialized courses could reinforce each other and lead to a thorough understanding of concepts presented in either course. This is in agreement with the results obtained by Moattarian and Tahririan (2014) findings that ESP and specialized courses had to be offered simultaneously. However, the participants' views on this issue were contradictory.

Not surprisingly, a large number of ESP teachers and a few students thought ESP had to be offered after specialized courses. In this case, ESP teachers would face fewer challenges clarifying the content and could pay more attention to the language, which is the focus of English for general purposes (EGP) rather than ESP. In addition, students could understand the texts easily and get good scores in their ESP courses. ESP teachers stated since ESP could help students in research (if academic writing were practiced) and real professional needs (if oral skills were focused), it would be more practical to offer ESP after specialized courses. However, since reading is the only focused skill in our ESP courses, it is too late and not practical to offer ESP courses after specialized courses.

A few of the ESP teachers, a number of the students, and most of the medical professionals believed ESP was better to be offered before specialized courses since they would gain a general familiarization with their field, which could be a kind of introduction to future specialized courses. They thought having ESP courses, which included the related content and terminology, could be very effective before specialized courses. As Skelton and Whetstone (2012, p.93) point out, in ESP, "Teaching the language is a means, not an end." Therefore, in our ESP context, it seems that offering ESP courses before or together with specialized courses might bring about more promising results.

Conclusion and Implications

Certain challenges in teaching and learning ESP can be tackled with the right vision and implementation. First, technology integration, such as the inclusion of multimedia software, medical videos and pictures, and certain applications, can be invaluable to enhance the efficiency of EMP classes. Second, as one of the 'active' (Liu & Hu, 2021, p. 108) areas of ESP in the 'flourishing stage' era, the disciplinary academic discourse mainly employs genre analysis to associate the rhetorical patterns and linguistic features of texts in different disciplines (Basturkmen, 2022, p.513). Therefore, ESP teachers are advised to pay special attention to the practice of genres. Third, to meet the challenges arising from inappropriate materials, available commercially published textbooks should be evaluated, and relevant supplementary materials can enrich the chosen book (Khalili & Tahririan, 2020). Finally, large heterogeneous classes made EMP courses less efficient. However, as Ur (2012) suggests, teachers can handle these classes by using a variety of class activities to address different levels and learning styles, promoting collaboration to benefit from peer-teaching and -learning, and personalizing class activities.

Limitations and Suggestions for Further Study

This study was subject to certain limitations. First, the study recruited medical and dental students and professionals. Future studies can include participants from other medical disciplines. Moreover, only two universities were selected to collect data. Larger samples from various universities can present a clearer and more in-depth picture of the topic. Finally, the study recruited ESP teachers, medical professionals, and medical students taking ESP courses. Adding a group of students who have already passed ESP courses and are near graduation can provide more insight into the topic.

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