

Needs Analysis of College Students for ESP Under the Scope “New Liberal Arts”

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Abstract

The term “new liberal arts” encourages integrating traditional liberal arts with other disciplines to promote the efficacy of education. It has been well received all around China, especially in higher education. Under such a background, ESP courses must be tailored to equip college students with sufficient knowledge and training that integrates English with professional expertise. The researchers designed a questionnaire to collect data from five perspectives to better gain insight into students’ needs for ESP courses. The central part of the questionnaire adopted 32 items of the Likert scale and one open-ended question, focusing on the evaluation of ESP courses, assessment of students’ current English ability, students’ needs for ESP courses, and what are the main problems hindering current ESP teaching for students and teachers. The questionnaire was distributed to the participants on an online survey platform. The participants were junior or senior undergraduates and ESP teachers from twelve public universities in China. After the survey, the researchers collected 1078 questionnaires for students and 213 for teachers. The results showed that students and teachers did not think positively of current ESP courses and students’ current English ability, and students had the need for ESP courses on different scales. Furthermore, the study also found that there were discrepancies between the students and teachers with regard to specific items. The findings suggest that an interdisciplinary

perspective is needed when carrying out ESP courses, and consensus-based collaboration between students and teachers is also indispensable.

Keywords: needs analysis, college students, ESP, new liberal arts, interdisciplinary

1. Introduction

The term “new liberal arts” attaches great importance to the innovation of traditional liberal arts through interdisciplinary interaction (Cai, 2019). In “new liberal arts”, coordinating and sharing among different disciplines are keys to coping with rigid thinking patterns and industrial segmentation. According to Wang and his collaborators (2023), “new liberal arts” has four features. Firstly, it is interdisciplinary, promoting the coordination of liberal arts with other disciplines. Secondly, it features a new research paradigm, advocating the application of cutting-edge technologies to liberal arts and upgrading their research paradigm. Thirdly, it can strengthen the status of liberal arts and improve their efficiency by taking advantage of other disciplines. Finally, it can meet China’s specific conditions and the requirements of the new age, with the boundaries of industries becoming increasingly blurred and the integrated elitists becoming increasingly needed. Above all, the new trend requires that liberal arts courses be deeply integrated with students’ disciplinary knowledge.

Since the debut of “new liberal arts”, there has emerged a wave of initiatives for promoting the new conception (Ma, 2023). For example, the Ministry of Education of China sponsored 1011 national research projects on “new liberal arts”. Such initiatives ushered in a new trend of education reform in China. Under such a circumstance, English for specific purposes (ESP) must be tailored to equip college students with sufficient knowledge and training that integrates English with professional expertise (Fang, 2021). To realize that, we had better conduct a needs analysis of college students. By doing so, a general picture of students’ needs can be depicted under the new circumstances, which can help make a comprehensive teaching plan (Cai, 2023). However, there is no comprehensive study concerning students’ needs for ESP from the perspective of “new liberal arts” in China (Chun et al., 2021). Meanwhile, teachers’ opinions are ignored when conducting needs analysis (Cai, 2019). In view of the aforesaid situation, this study aims to address the problem and answer the following questions from the perspectives of necessities, lacks, and wants: 1. What do students and teachers think of the current ESP courses? 2. How do they rate students’ English ability within the ESP scope? 3. What are students’ needs for ESP?

2. Literature Review

Taking shape from the 1960s to 1970s, ESP geared English teaching to serve practitioners of different industries (Ye et al., 2023). One primary principle of ESP is giving priority to the learners’ needs. According to Hutchinson and Waters (1987), ESP is not a special language or method but a way of teaching that centers on students’ learning objectives. Therefore, it is necessary to determine what the students need for the language they are learning. Whatever

students' needs are, we can know about the "specific purposes" by analyzing the needs comprehensively and systematically (Yi, 2023). A comprehensive needs analysis can explore students' necessities, lacks, and wants, mirroring needs on different scales (Lobo & Gurney, 2014). Necessities reveal the needs through the necessary knowledge and skills for carrying out specific tasks. Lacks refer to the deficiency of specific language knowledge and skills to undertake given tasks. Wants are mainly concerned with what the students need for the language they are learning. Thus, an integrated need complex is formed, which calls for a deep demystification.

Of various schools of needs analysis, the perspective of Hutchinson and Waters was well received in China. Shu (2004) held that the needs for ESP could be met in two aspects, i.e., "social needs" and "personal needs". She found that integrating "social needs" and "personal needs" could significantly improve the efficiency of ESP teaching. In other words, we need to know what English knowledge and skills are needed through given professions and the student's individual needs for ESP courses. Based on Shu's research, Chen (2010) formulated two modes for needs analysis of college English and found that a comprehensive needs analysis was workable for improving English teaching. Some researchers carried out empirical studies to explore the needs of students and employers (Lei, 2010). Yu (2012) investigated the energy industry's needs for English by probing recruitment requirements, job types, and in-service training. He found that only the English knowledge and skills integrated with the industry could make a qualified employee. Lei (2010) analyzed the need for ESP among engineers. The study found that practical English knowledge and skills concerning vocabulary, grammar, reading, writing, and speaking were desperately needed to perform their professional tasks better.

Zhang (2019) surveyed students' needs for English in relation to their majors in Shanxi Province. She found that there were gaps between the English training program and their real expectation. The study concluded that the current English teaching did not address the problems arising from their diverse professional expectations and limited English knowledge and skills. Cai (2019) comprehensively explored college students' and teachers' needs for academic English. According to the study, students and teachers had a great need for English geared toward their academic life. Meanwhile, they both worried that students' existing knowledge of English was insufficient for their academic work. This study also found that there were some gaps as to what knowledge to give priority.

Li and Dai (2023) surveyed the needs of medical college students for academic English. They found that students had a strong need for English geared to their medical careers. However, the English courses they were in could not meet the professional demand for English knowledge and skills. Zhang et al.(2023) researched students' Business English needs among students majoring in Business English in Guangxi Province. They concluded that it was necessary to reform the curriculum and the training modes in universities of various levels. Moreover, a cross-disciplinary perspective was needed to integrate English with the industry that the students might work in.

Though significant efforts have been made, the current ESP endeavors are mainly top-down, with initiatives usually launched by institutions of various levels (Cai, 2019). There is a lack

of clear expression of needs from students and teachers (Zhang, 2019). As can be found in previous studies, China's ESP initiative has been launched for nearly four decades. Nevertheless, the gaps between current English teaching and the actual needs have not been filled (Zhang, 2022). Though the studies unanimously found that current college English can neither meet students' nor employers' needs (Zhou & Zhu, 2020), quite few studies have explored deeper to figure out what is needed for students and what teachers' opinions are in given professions in China. Meanwhile, no research has been done on whether the students and teachers coordinate effectively to address the needs. Furthermore, no study concerning needs analysis has been carried out from the perspective of "new liberal arts".

3. Method

3.1 The Participants

Both college students and teachers were surveyed for a comprehensive understanding. The students were non-English major undergraduates who were juniors or seniors. They have finished the College English courses and have had or were having ESP courses in their universities. The teachers surveyed all had five years or more of teaching experience in ESP courses. Both students and teachers were from 12 public universities: Hebei University of Architecture, Hebei North University, Zhangjiakou University, Jinzhong University, Shanxi University, Liaocheng University, Jilin Normal University, Tonghua Normal University, Northeast University, Shenyang University of Architecture, Shandong University of Architecture, and Zhejiang Normal University.

3.2 Data Collection Tool and Procedure

Before the study, a small-scale pre-survey was conducted to determine the demand category and questions for the ESP needs analysis questionnaire at Hebei University of Architecture. The survey aimed to depict the general profile concerning ESP courses in Chinese universities with importance attached to discipline-specific English knowledge and skills needed by college students of non-English majors or those in the workforce. The needs of students were the focus of the survey. There are three kinds of question items, i.e., multiple choices for general information of the participants, statements on the Likert scale for needs analysis, and an open-ended question for participants to share their ideas. In the section for needs analysis, Likert five-level scale was adopted, with options being "strongly disagree", "disagree", "not sure", "agree", and "strongly agree". It can give qualitative data a numerical value, determining how strongly a respondent agrees with a claim about the worth of something and giving that assertion a specific point. The corresponding scores are 1, 2, 3, 4, and 5, with the items ranging from the participants' evaluation of their English ability and current English teaching to their needs for ESP.

Based on the pre-survey, a questionnaire was finally designed with the help of two inter-raters proficient in ESP courses and questionnaires. There were 36 items in all, divided into five parts. The first four items were multiple-choice questions about the general information of the participants, making up the first part of the questionnaire. Item 5 to Item 35 were in the form

of a Likert scale, in which Item 5 to Item 11 formed the second part of the questionnaire concerning the evaluation of the ESP courses. The third part included Items from Item 12 to Item 23, focusing on assessing students' current English ability. The fourth part, including Items 24 to Item 35, was used to get information on students' needs for ESP courses. There was only one item in the last part, in which Item 36 was an open-ended question, mainly arousing participants' opinions concerning the main problems that hinder the current ESP teaching. Of all the items, Item 5 to Item 35 constituted the main body for collecting the data for analysis. In other words, the second, third, fourth, and fifth parts formed the main body for collecting the target information concerning students' necessities, lacks, and wants.

As revealed in Table 1, students and teachers were surveyed separately, with 1200 questionnaires for students and 240 questionnaires for teachers sent. Of the 1200 questionnaires, 1078 questionnaires were collected, with 213 questionnaires for teachers collected from the 240 questionnaires sent.

Table 1. Participants' institution and questionnaires collected

University	Student		Teacher	
	Sent	Collected	Sent	Collected
Hebei University of Architecture	100	98	20	20
Hebei North University	100	95	20	20
Zhangjiakou University	100	95	20	20
Jinzhong University	100	84	20	15
Shanxi University	100	78	20	16
Liaocheng University	100	90	20	17
Jilin Normal University	100	91	20	19
Tonghua Normal University	100	94	20	20
Northeast University	100	80	20	14
Shenyang University of Architecture	100	92	20	17
Shandong University of Architecture	100	92	20	16
Zhejiang Normal University	100	89	20	19
Total	1200	1078	240	213

3.3 Data Analysis

The questionnaire was distributed through an online survey platform called Wenjuanxing, which can send the questionnaire instantly and be answered easily. It can calculate and produce the results explicitly and directly, with the results that can be processed by SPSS, which can calculate the mean value of each item for further analysis. A mean value can reveal the participants' attitudes toward a given item. The higher the value, the more positive the attitudes are (Tang, 2023). The value "3" can be considered critical (Cai, 2019). If the value is lower

than 3, the attitudes are deemed negative. If the value is higher than 3, the attitudes are on the positive side. By studying the mean values, we can gain insight into the general attitudes of the respondent.

The results concerning Item 1 to Item 4 can be counted by the platform directly, which can explicitly reveal the general information of the participants. The results of Item 5 to Item 35 were further processed by SPSS 18.0, with the mean values of students' and teachers' responses revealing the differences or similarities of their attitudes. The number and the percentage of each scale can be calculated, including the mean value of the scales of the items. In this way, students' and teachers' attitudes can be revealed. Furthermore, their consensus and different ideas can be uncovered. Item 36 needs manual identification based on the contents of the answers with the help of the inter-raters.

3.4 Reliability and Validity

The questionnaire was adapted from Cai's (2019) research on EAP needs analysis of university students of non-English majors. His questionnaire has been proven to be reliable and valid for needs analysis. Besides, pilot studies had been made to help polish the questionnaire with the help of two inter-raters who were good at ESP courses and questionnaires.

4. Results

To answer the research questions, this part mainly focuses on the main body of the questionnaire. The results were generally divided into four parts, focusing on the evaluation of the current ESP courses (Table 2), the assessment of current students' current English ability (Table 3), students' needs for ESP courses (Table 4), and the main problems that hinder the current ESP teaching (Table 5).

4.1 Evaluation of the Current ESP Courses

This part focuses on students' and teachers' evaluation of the current ESP course, with importance attached to necessities for students.

As shown in Table 2, more than half of the students generally held a negative attitude toward Item 5, with 31.63% strongly disagreeing with it and 25.05% of the students holding the attitude of "disagree". It is further proved by the mean value (2.53), suggesting that this item was not actively responded to. Teachers were also not supportive of Item 5, with 22.21% agreeing and 8.92% strongly agreeing. According to the mean value of the teacher's attitude (2.71), teachers were more positive than students regarding this item. Regarding the attitudes toward Item 6, neither the students nor the teachers were positive, with the mean values being 2.31 and 2.79, respectively. However, the students and teachers were quite different in their attitudes on different scales. As can be seen from the table, 28.76% of the students chose to "strongly disagree" with the item, and 31.73% of the students chose to "disagree" with it, with the teachers' percentages of the same attitudes being 20.19% and 19.71%. When it comes to Item 7, "Current ESP courses help students to obtain and exchange professional information in English effectively", the discrepancy in attitude between students and teachers was very

evident. There were more students holding negative attitudes than the teachers and fewer students showing positive attitudes than the teachers (see Table 2). This discrepancy can also be found in the responses to Item 8, with many more students strongly disagreeing (32.19%) or disagreeing (25.88%) with the statement than those of teachers (16.43% and 16.9%). As can be seen from the results, most students did not think highly of the current ESP courses with regard to cultivating students' ability to engage in professional learning and future work in English.

More students and teachers agreed with the statement of Item 9, which is revealed by the mean values of their responses (3.88 and 3.83). As revealed in the table, only a tiny portion of the students and teachers did not think the current ESP courses repeated the contents taught in English for general use. A large number of the students and teachers (23.75% and 10.33%) were "not sure" about the statement. Discrepancy emerged again in the responses to Item 10, with the mean value of the students' response being 2.74 and the teachers' being 3.83. As revealed in Table 2, 22.73% of the students strongly disagreed with the statement of Item 10, 20.41% disagreed with it, and 28.76% were not sure about it. On the other hand, the corresponding percentages of the teachers are 6.57%, 11.74%, and 12.21%. The results further reveal that most teachers thought positively of the teaching materials, while only 14.61% of students held a similar stance. As to Item 11, 17.72% of the students strongly disagreed with the statement, and 21.34% disagreed, with 30.61% not sure. Contrary to that, only 2.35% of teachers strongly disagreed, and 10.33% disagreed. There is also a significant discrepancy in the mean values of the responses, with students' being 2.88 and teachers' being 4.1.

Table 2 Evaluation of ESP courses

NO.	Item	Participant	Scale (%)					Mean value
			1	2	3	4	5	
5	The ESP courses offered by your university cannot help students with professional learning and research.	Student	31.63	25.05	17.81	9.51	16	2.53
		Teacher	14.55	19.58	34.74	22.21	8.92	2.71
6	The current teaching objectives of ESP in your university are clear	Student	28.76	31.73	23.1	11.87	4.54	2.31
		Teacher	20.19	19.71	29.11	23	7.99	2.79
7	Current ESP courses help students to obtain and exchange professional information in English effectively.	Student	38.03	27.27	18.55	11.69	4.46	2.17
		Teacher	26.29	17.37	27.7	17.37	11.27	2.7
8	The current ESP teaching mode can cultivate college students' ability to engage in professional learning and future work in	Student	32.19	25.88	23.56	14.19	4.18	2.32
		Teacher	16.43	16.9	18.78	38.03	9.86	3.08

	English.							
9	The current ESP courses repeat the English teaching content in English for general use to varying degrees.	Student	0	10.3	23.75	33.67	32.28	3.88
		Teacher	2.34	18.78	10.33	30.52	38.03	3.83
10	The teaching materials are conducive to teaching and learning activities.	Student	22.73	20.41	28.76	16.23	11.87	2.74
		Teacher	6.57	11.74	12.21	30.99	38.49	3.83
11	Teachers of ESP in your school are competent for their job.	Student	17.72	21.34	30.61	15.86	14.47	2.88
		Teacher	2.35	10.33	11.27	28.17	47.88	4.1

4.2 Assessment of Current Students' English Ability

Results in this part are mainly concerned with students' and teachers' assessment of student's current English ability, focusing on the lacks of students.

As seen from Table 3, 30.8% of the students agreed with Item 12, and 18.92% strongly agreed with it. However, only 10.33% of the teachers agreed with it, and 12.2% strongly disagreed. Significant differences can further be found in the portions of "strongly disagree" and the mean values. The percentage of students who strongly disagreed with it is 9.28%, and the corresponding percentage of teachers is 39.91%. The mean value of students' responses is 4.22, and the teachers' response is 2.42. Such results suggest a significant difference in the attitudes of students and teachers concerning the issue of whether students can actively complete the learning tasks as required. As to Item 13, attitudes were also different between students and teachers, which can be uncovered by the mean values (the students' response is 2.45, the teachers' 3.15). More than half of the students held unfavorable attitudes toward the statement (See Table 3), while the corresponding portion is much lower. Meanwhile, 39.44% of the teachers thought positively of Item 13, compared to 24.73% of the students correspondingly. Such results suggest that only a few students thought they could understand and listen to subject-related lectures or reports given by foreign experts or teachers in English. Students' responses to Item 14 were also not positive, in which 33.3% strongly disagreed with the statement, and 24.12% chose "disagree", leading to a low mean value of 2.33. Teachers were also not positive toward this item, with the mean value being 2.7.

Many students and teachers shared similar attitudes regarding Item 15. In the responses to the statement, 30.43% of the students chose "strongly disagree", and 28.57% chose "agree". As for the teachers' response, 21.13% of the teachers strongly disagreed with the statement, and 23.47% chose to disagree. The mean values of the response (students' is 2.38 and the teachers' is 2.58) further suggest that most of the students and teachers did not think positively of students' ability to make oral presentations of their academic papers in English and attend various conferences and discussions related to their majors. Item 16 is mainly about whether the students can communicate in English about professional issues. The students' mean value is 2.87, and the teachers' is 3.4, which suggests that teachers thought more positively than students do. This can further be proved by the fact that 28.17% of the teachers agreed with the statement, and

21.6% strongly agreed, compared to 20.59% and 10.02% of students' corresponding responses. As to Item 17, "Students can make discipline-related reports, literature reviews, paper abstracts, and journal papers in English.", only 16.65% of the students agreed with it, and 5.9% strongly agreed. Contrary to the students' response, 30.52% of the teachers agreed, and 21.12% strongly agreed. This suggests that there are cognition differences between students and teachers with regard to students' ability to make discipline-related reports, literature reviews, paper abstracts, and journal papers in English.

As can be seen from Table 3, the students and teachers held similar attitudes toward Item 18. Only a small number of them thought positively of the statements, suggesting that both the students and teachers doubted students' ability to follow the general rules and adopt various strategies and methods in writing relevant materials. In terms of Item 19, "The current English level of students can meet the requirements or needs of discipline-related studying abroad.", 24.3% of the students strongly disagreed with the statement, 27.28% disagreed, and 16.88% were not sure about it. Similarly, 26.76% of the teachers strongly disagreed with the statement, 21.13% disagreed, and 10.33% were not sure. Such results suggest that the current English level of students is not satisfactory to the great majority of students and teachers.

When it comes to Item 20, "Students have mastered the English vocabulary features of their disciplines.", 28.29% of the students strongly disagreed with it, 27.92% disagreed, and 19.57% were not sure. This suggests that discipline-specific English vocabulary features need importance to be attached for the majority of the students. However, 30.05% of the teachers were not sure about this item, 26.29% agreed with it, and 12.68% strongly agreed. Such results suggest a cognition difference between the students and teachers regarding the vocabulary issue, which is further revealed by the mean values of the responses. The student's and teachers' opinions are similar regarding Item 21, with more than half of each group holding a negative stance (see Table 3). Such results mean that the majority of the students and teachers were not satisfied with students' grammatical knowledge suitable for their disciplines. The responses of the students and teachers to Item 22 are similar to those to Item 21, which suggests that both the students and teachers did not think positively of the statement that students had mastered the English rhetorical characteristics of their majors. This can be found from their mean values, with students' responses being 2.11 and teachers' responses being 2.53. Item 23 is similar to Item 21 and Item 22, in which the mean values of the students' response is 2.19 and that of teachers is 2.36. This means that neither the students nor teachers supported the statement of Item 23. To them, a large number of students cannot understand the writing specifications and publication requirements of various documents in their discipline.

Table 3. Assessment of current students' current English ability

NO.	Item	Participant	Scales (%)					Mean value
			1	2	3	4	5	
12	Students can actively complete	Student	9.28	11.22	29.78	30.8	18.92	4.22

	the English learning tasks as required.	Teacher	39.91	13.15	24.41	10.33	12.2	2.42
13	Students can understand and listen to subject-related lectures or reports given by foreign experts or teachers in English.	Student	37.48	19.39	18.46	10.39	14.28	2.45
		Teacher	17.84	9.39	33.33	18.78	20.66	3.15
14	Students can read the materials and discipline-related documents, and they can quickly retrieve the required information relevant to their major.	Student	33.3	24.12	24.95	11.13	6.5	2.33
		Teacher	28.16	10.8	32.86	19.25	8.93	2.7
15	Students can make oral presentations of their academic papers in English and attend various conferences and discussions related to their majors.	Student	30.43	28.57	9.37	12.71	18.92	2.38
		Teacher	21.13	23.47	16.43	23	15.97	2.58
16	Students can communicate with foreign counterparts in English through email, WeChat, WhatsApp, or other media about professional issues.	Student	12.24	29.41	27.74	20.59	10.02	2.87
		Teacher	4.69	21.13	24.41	28.17	21.6	3.4
17	Students can write discipline-related reports, literature reviews, paper abstracts, and journal papers in English.	Student	25.14	19.94	32.37	16.65	5.9	2.58
		Teacher	11.74	16.43	20.19	30.52	21.12	3.33
18	Students can follow the general rules and adopt various strategies and methods in writing the relevant materials.	Student	17.81	24.21	30.89	15.12	11.97	2.79
		Teacher	18.31	22.7	33.33	15.96	9.7	2.32
19	The English level of students can meet the requirements or needs of discipline-related studying abroad.	Student	24.3	27.28	16.88	15.77	15.77	2.71
		Teacher	26.76	21.13	10.33	14.08	27.7	2.95
20	Students have mastered the English vocabulary features of their disciplines.	Student	28.29	27.92	19.57	17.53	6.69	2.46
		Teacher	13.61	17.37	30.05	26.29	12.68	3.07
21	Students have mastered the English grammatical features of their discipline.	Student	35.34	22.36	24.58	9.55	8.16	2.3
		Teacher	32.39	20.66	23	9.39	14.56	2.53
22	Students have mastered the English rhetorical characteristics of their major.	Student	38.21	30.43	18.55	8.16	4.65	2.11
		Teacher	29.11	31.92	10.8	13.62	14.56	2.53

23	Students can understand the writing specifications and publication requirements of various documents of their discipline.	Student	37.84	33.95	9.65	8.26	10.3	2.19
		Teacher	33.8	31.46	10.33	14.08	10.33	2.36

4.3 Students' Needs for ESP Courses

This part is geared to the wants of the students. There are 12 Items in this section, focusing on uncovering students' needs for ESP courses.

According to Table 4, both students and teachers thought positively of the statement of Item 24. As for students' responses, 41.93% of them agreed with the statement, and 31.05% strongly agreed. Similarly, 46.95% of the teachers agreed with the statement, and 44.36% of them strongly disagreed with it. This suggests that both of them thought that students have the need to take ESP courses related to their majors. With regard to Item 25, both students and teachers thought positively of the statement, as can be seen from the results. In this item, 47.4% of the students agreed with the statement, and 41.28% of them strongly agreed with the statement. This means that the ability to read English materials relevant to their disciplines is in great demand. As to Item 26, 39.05% of the students agreed with the item, and 33.87% of them strongly disagreed. The positive attitudes were also revealed by the mean values, with students' being 3.98 and the teachers' being 4.38. It means that both the students and teachers believed that students had the need to understand and listen to relevant lectures or reports made by foreign experts or teachers in English. Responses of the students and teachers to Item 27 also reveal students' need to read the materials and discipline-related documents, and they need to quickly retrieve the required information relevant to their major. According to the table, 43.69% of the students and 56.81% of the teachers chose "agree", and 27.1% of the students and 38.96% of the teachers chose "strongly agree".

When surveyed further, the bulk of students were found to have the need to make oral presentations of their academic papers in English and attend various conferences and discussions related to their majors, which is revealed by the responses to Item 28. Of the responses, 37.11% of the students agreed with the item, and 27.73% strongly agreed. Similarly, 30.52% of the teachers chose "agree", and 38.03% chose "strongly agree". As to Item 29, 30.8% of the students and 39.91% of the teachers were not sure. Besides, 27.64% of the students and 20.19% of the teachers agreed with the statement, and 8.63% of the students and 22.53% of the teachers strongly agreed. When it comes to Item 30, 31.08% of the students agreed with it, and 22.36% strongly agreed. Strikingly, the teachers had more positive attitudes towards this item, with 30.05% agreeing and 47.41% strongly agreeing. Such positive attitudes can also be seen from the mean value of their responses. The results mean that students have the need to make discipline-related reports, literature reviews, paper abstracts, and journal papers in English. Both the students' and teachers' responses to Item 31 were quite positive, with mean values of 3.65 and 4.33. The difference is that no teachers held negative attitudes toward this item, and only 6.57% were unsure about the statement.

In response to Item 32, “Students have the need to upgrade their English for studying professional knowledge abroad.”, 40.35% of the students chose “agree”, 38.69% chose “strongly agree”, and no one held a negative attitude. However, 13.62% of the teachers strongly agreed with the item, and 16.43% agreed. Such results suggest that English vocabulary features of their discipline are needed, though there are differences in the cognition of students and teachers. Similarly, both the students and teachers thought positively of Item 33, with mean values of 4.27 and 3.87. Therefore, students need to master the English grammatical features of their disciplines. Furthermore, responses to Item 34 reveal that 24.12% of the students agreed with the statement, 22.45% of them strongly agreed with it, and 33.21% of them were not sure about whether there was a need to master the English rhetorical features of their disciplines. However, the majority of the teachers believed that there was a need to master the English rhetorical features of their disciplines, with 41.31% agreeing with the statement and 32.59% strongly agreeing (see Table 4). As to the responses to Item 35, 26.62% of the students agreed with it, 28.58% of them strongly agreed, and 26,35% of the students were not sure. The teachers were more positive toward this item, with 42.78% agreeing with the statements, 37.09% strongly agreeing, and 21.13% being not sure. The results suggest a need to understand the writing specifications and publishing requirements of various documents of their disciplines.

Table 4. Students’ needs for ESP courses

NO.	Item	Participant	Scale (%)					Mean value
			1	2	3	4	5	
24	Students have the need to take ESP courses related to their major.	Student	2.69	4.73	11.6	41.93	31.05	3.7
		Teacher	0	1.41	7.04	46.95	44.6	4.34
25	Students have the need to read English materials relevant to their discipline.	Student	1.11	1.95	8.26	47.4	41.28	4.26
		Teacher	0	0	7.04	41.78	51.18	4.44
26	Students have the need to understand and listen to relevant lectures or reports made by foreign experts or teachers in English.	Student	2.78	4.73	19.57	39.05	33.87	3.98
		Teacher	0	0	4.69	53.05	42.26	4.38
27	Students have the need to read the materials and discipline-related documents, and they need to quickly retrieve the required information relevant to their major.	Student	6.49	7.51	15.21	43.69	27.1	3.77
		Teacher	0	0	4.23	56.81	38.96	4.35
28	Students have the need to make oral presentations of their academic papers in English and attend various conferences and	Student	11.69	10.3	13.17	37.11	27.73	3.59
		Teacher	0	10.33	21.12	30.52	38.03	3.96

	discussions related to their majors.							
29	Students have the need to communicate with foreign counterparts in English through email, WeChat, WhatsApp, or other media.	Student	12.71	20.22	30.8	27.64	8.63	2.99
		Teacher	7.04	10.33	39.91	20.19	22.53	3.41
30	Students have the need to make discipline-related reports, literature reviews, paper abstracts, and journal papers in English.	Student	12.98	15.03	18.55	31.08	22.36	3.35
		Teacher	0	10.8	11.74	30.05	47.41	4.14
31	Students have the needs to upgrade their English for studying professional knowledge abroad.	Student	6.86	8.72	29.41	22.26	32.75	3.65
		Teacher	0	0	6.57	53.99	39.44	4.33
32	Students have the need to master the English vocabulary features of their disciplines.	Student	0	0	20.96	40.35	38.69	4.18
		Teacher	13.62	16.43	9.86	30.51	29.58	3.46
33	Students have the need to master the English grammatical features of their disciplines.	Student	0	2.32	11.87	42.39	43.42	4.27
		Teacher	6.96	6.57	15.96	33.8	36.71	3.87
34	Students have the need to master the English rhetorical features of their disciplines.	Student	8.07	12.15	33.21	24.12	22.45	3.41
		Teacher	5.16	8.26	12.68	41.31	32.59	3.73
35	Students have the need to understand the writing specifications and publishing requirements of various documents in their disciplines.	Student	8.44	9.74	26.35	26.62	28.85	3.58
		Teacher	0	0	21.13	41.78	37.09	4.16

4.4 Main Problems that Hinder the Current ESP Teaching

When it comes to Item 36, “What do you think are the main problems that hinder the current ESP teaching?”, various answers can be found. Of the answers, some answers from the students and the teachers are most frequently listed, as revealed in Table 5. To the students, the fact that contents are not closely related to their disciplines is the first problem that hinders the current ESP teaching. Secondly, the teaching modes and methods are not suitable for carrying out ESP courses. The third problem listed by the students is that teachers cannot integrate English knowledge with professional knowledge. Nevertheless, most teachers believe that students’ initiative-taking is the number one problem. To them, the difficulty in integrating English knowledge with professional knowledge is the second problem. The third problem for the teachers is that due importance has not been attached to ESP courses. Therefore, it can easily be seen that there is a significant difference between the students and teachers with regard to Item 36.

Table 5. Problems listed by the students and teachers that hinder the current ESP teaching

36. What do you think are the main problems that hinder the current ESP teaching?	
Students	1. The contents are not closely related to their disciplines 2. The teaching modes and methods are not suitable for carrying out ESP courses. 3. Teachers cannot integrate English knowledge with professional knowledge.
Teachers	1. Students are not initiative-taking. 2. It is difficult to integrate English knowledge with professional knowledge. 3. Due importance has not been attached to ESP courses.

5. Discussion

As can be seen from the results, we can draw up answers to the research questions. As to RQ1, though not denying the usefulness of the current ESP courses, the majority of students and teachers were not satisfied with them in many aspects. Such a result is in line with previous studies, further suggesting that though great efforts have been made (Guo & Liu, 2019), more work needs to be done to improve the current ESP teaching efficiently. What is noteworthy is this study found that the teachers were more positive than the students were with regard to specific issues. Such a result suggests that there is a cognition discrepancy between students and teachers, which means there needs to be further consensus between them when dealing with ESP courses. When it comes to RQ2, the assessment of student's current English ability, many students did not think positively of their current English ability. Such results indicate that many students cannot acquire the ability through their current English endeavors despite the continuous efforts in ESP. Furthermore, the teachers were generally more positive than the students, which also means there is a lack of consensus regarding the students' current English abilities. This result also confirms the results of previous studies, revealing that students' English abilities were not as satisfactory as expected. As for RQ3, what are the students' needs for ESP courses? Both the students and teachers believed that there was a need for comprehensive ESP courses. It can further be found that the teachers tended to be more positive toward such a need.

Compared with previous studies, this study went into great detail to tap into students' needs for ESP courses from Lobo and Gurney's perspective (2014). Such needs mirror students' "necessities", "lacks", and "wants" regarding ESP courses. In other words, ESP courses are necessary for students' professional development. However, current ESP courses cannot fully equip students with language knowledge, leading to the "lacks" in their English ability. Consequently, the "wants" for the ESP courses emerge from students. Such results suggest that a comprehensive effort is needed to meet students' demands. When it comes to problems listed by the students and teachers that hinder the current ESP teaching, they held pretty different ideas. This means there is a lack of mutual understanding between the students and teachers.

6. Conclusion

Simply put, the results reveal that the current ESP courses and students' English abilities are not satisfactory to most students and teachers, and there is a need to upgrade the ESP courses comprehensively. Therefore, integrated efforts are preferred to emphasize the English geared to specific professions. However, there are cognitive differences between the students and teachers. Such differences may cause misunderstanding and interfere with the effective collaboration between the students and teachers. In this sense, there should be consensus between them concerning the critical issues of ESP courses. To do that, effective and timely communications and the integration of English knowledge and professional content are inalienable. To conclude, tailored ESP courses are still needed, requiring interdisciplinary efforts from close consensus-based collaboration between the students and teachers. This is also the requirement of the "new liberal art", calling for interdisciplinary efforts.

Though with some insightful findings, this study has two limitations concerning the research scope. On the one hand, only 12 public universities were surveyed. A more considerable sum of samples may obtain a more credible result. On the other hand, solely adopting questionnaires may not be comprehensive enough. Other measures like interviews may be helpful for gaining further insight into the participants' opinions. Therefore, it may be more comprehensive for future research to carry out needs analysis under a broader survey scope with multiple research methods.

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