

INVESTIGATING MEDICAL STUDENTS' LEARNING OF SPECIALIZED VOCABULARY IN ENGLISH AT TRA VINH UNIVERSITY, VIETNAM

Nguyen Thi Cam Nhung^{1*}, Khau Hoang Anh²

Abstract – *This study investigated a group of medical students' perspectives on common difficulties in learning specialized vocabulary in English or English for Specific Purposes in their program. The study employed a quantitative method, which used a five-point Likert scale questionnaire to survey 214 medical students at Tra Vinh University. The study results revealed that as the students realized the importance of the specialized course, they had set clear goals for their studies. In particular, specialized vocabulary in English materials is one of the obstacles that students encounter in their learning process. Besides, the participants admitted that they also faced learning problems due to teaching methods. The study also found that they had difficulties in learning specialized vocabulary due to many problems, such as multi-syllabic words which made them difficult to enunciate, write, memorize, identify meanings, abbreviate terms, and associate collocations. Recommendations for related stakeholders such as the Faculty of Specialization and Foreign Languages were included to improve the learning and teaching of specialized vocabulary in English at Tra Vinh University.*

Keywords: *English for Specific Purposes, medical students, specialized vocabulary in English, Tra Vinh University, vocabulary learning problems.*

I. INTRODUCTION

Foreign languages, specifically English, are an effective and necessary tool to access the common treasure of human knowledge. Most of the information in different fields appears in English.

Foreign language learners must have a rich and specialized vocabulary in English to ensure understanding. English for Specific Purposes (ESP) is linguistically intensive for learners, but technical English is crucial for students to communicate to a broader and more diverse audience from different sciences and with different languages. Hence, it is evident that knowing English and using it for specific purposes is essential. Mohan [1] added that ESP courses prepare learners for chosen communicative environments. Learning specialized vocabulary in English not only helps learners to learn more deeply about their field but also to open the door to a future career path. Knowing technical English vocabulary facilitates users to understand more professional documents and have the opportunity to participate in seminars to exchange professional issues with colleagues. Besides, being good at specialized English is essential to quickly producing international articles or scientific reports. Moreover, learners will have more confidence to face work pressure later and be appreciated for their understanding. Therefore, if medical students are incompetent with specialized vocabulary, they will find it challenging to access their professional fields.

All students majoring in medicine at Tra Vinh University must study specialized English in their study program. However, technical English is not as simple as general English because of the specificity of each profession. Students have difficulties in learning specialized vocabulary in English in the learning process, applying their self-study effectively, reviewing technical documents, and developing their professional skills after graduation. In this study, the authors want to understand the obstacles to learning specialized vocabulary in English to give possible solutions that hopefully help medical students to deal with

^{1,2}Tra Vinh University, Vietnam

*Corresponding author: nhungnhung@tvu.edu.vn

Received date: 08th October 2022; Revised date: 24th February 2023; Accepted date: 27th February 2023

specialized vocabulary learning.

The study explored medical students' challenges in learning specialized vocabulary in English at Tra Vinh University. The data collected from the survey were analyzed to obtain the descriptive statistics on the participants' perspectives so possible solutions to help medical students can be proposed to assist them in learning specialized English vocabulary in the medical field. This study is meaningful because the results can shed light on improve learning methods to support medical students in learning specialized vocabulary in English. The study employed the below research question to collect the study data.

What are medical students' perspectives of their required medical English courses at Tra Vinh University?

II. LITERATURE REVIEW

There are various definitions of English for Specific Purposes (ESP). These definitions are similar in terms of English used for a purpose or a particular field, but the definitions often vary in wording. Hutchinson and Waters [2, p.28] stated that 'ESP emerged to face the specific needs of people in specific fields such as medicine, agriculture, engineering, trade, and business'. According to Wright (cited by Ibrahim [3, p.201]) the concept of ESP can be defined as '...language learning which has its focus on all aspects of language about a particular field of human activity, while taking into account the time constraints imposed by learners.' In contrast, Orr (cited by Ouarniki [4, p.20]) stated that 'ESP is research and instruction that builds on English for General Purposes (EGP), and is designed to prepare students or working adults for the English used in specific disciplines, vocations, or professions to accomplish specific purposes.' Concerning the above definitions, ESP can be understood as the teaching of English for any specific purpose, but specialized vocabulary can challenge students, especially when the documents are presented in English.

In addition to ESP, different scholars have also defined specialized vocabulary in varying ways. According to Chung et al. [5], technical words or specialized vocabulary are used in a specialized or technical field, which differs considerably

from subject to subject. Nation, as cited by Hou [6, p.28], considered that specialized or technical vocabulary could come from high-frequency or low-frequency words in academia. He defined specialized vocabulary as recognizably specific to a particular topic, field or discipline. Acquiring technical language is crucial for learners to attain academic literacy and become part of their chosen academic discourse communities. Harding, as cited by Le et al. [7, p.1], explained that vocabulary is essential in ESP as learners will encounter various specialized words to describe concepts in their disciplines. Particular groups of people often use specialized words, and they include technical and semi-technical terminologies. For instance, some specialized economics words are consultant, crisis, innovation, promotion, supervise, and subordinates.

As the study also aims to provide practical recommendations to medical students, the researchers used Nation and Qian's theory of vocabulary knowledge frameworks to identify vocabulary learning requirements, mainly focusing on two questions: (a) what is a word, and (b) what is involved in learning a word? Three aspects of word knowledge are summarized in Table 1.

As shown in Table 1, Nation's framework constitutes a set of 18 questions categorized into three, and each includes receptive and practical aspects:

- Knowledge of form, containing spoken and written form and word parts
- Knowledge of meaning, including structure and meaning, concepts and references, and associations
- Knowledge of use, including grammatical functions, collocations, and usage constraints

This framework describes vocabulary knowledge from morphological, semantic, and pragmatic perspectives and shows that all aspects of vocabulary are closely related. Learners can locate the meaning of the words based on the word itself or the context. Whereas word forms and meanings also improve vocabulary in practical communication. However, Nation acknowledges that this vocabulary knowledge framework is a preliminary classification having plenty of room for improvement in further study. For example, measuring a language learner's vocabulary depth

Table 1: Components of vocabulary knowledge by Nation [8, p. 27]

Form	Spoken	R	What does the word sound like?
		P	How is the word pronounced?
	Written	R	What does the word look like?
		P	How is the word written and spelled?
	Word parts	R	What parts are recognizable in this word?
		P	What word parts are needed to express meaning?
Meaning	Form and meaning	R	What meaning does this word form signal?
		P	What word form can be used to express this meaning?
	Concepts, references and associations	R	What is included in the concept?
		P	What items can the concept refer to?
		R	What other words does this word make us think of?
		P	What other words could we use instead of this one?
Use	Grammatical functions	R	In what patterns does the word occur?
		P	In what patterns must we use this word?
	Collocations	R	What words or types of words occur with this one?
		P	What words or types of words must we use with this one?
	Constraints on use	R	Where, when and how often would we meet this word?
		P	Where, when and how often can we use this word?

Note: R = receptive, P = productive

only through description within his framework is challenging as it requires learners to master a word’s form, meaning, and use. Moreover, each category asks learners to memorize several detailed aspects of a word, e.g. collocations, grammatical functions, and constraints under a word’ use [9].

In contrast with Nation’s framework, Qian’s framework of linguistic knowledge [10, p.516] composes four aspects:

- a) The breadth of vocabulary knowledge, or vocabulary size, stands for the number of words a learner can recognize;
- b) Extensive vocabulary knowledge, including all features of words, including pronunciation, words frequency, morphological or syntactic properties, registers, meanings, semantic elements, and polysemy;
- c) Vocabulary organization, short for memorizing words, keeping connections between different words in the learner’s mind; and
- d) The automaticity of knowledge acquisition and effectiveness refers to the entire fundamental process of accessibility to vocabulary knowledge from the investment and productivity perspectives, respectively.

This framework emphasizes the importance of depth of vocabulary knowledge and accounts for vocabulary depth from a psychological point of

view. In Qian’s view, these four dimensions are connected and interact, and this framework is practical for researchers to discover what vocabulary knowledge is. In summary, vocabulary knowledge includes three aspects: breadth of vocabulary knowledge, depth of vocabulary knowledge, and use of vocabulary knowledge, all of which interact with each other.

According to Wu et al. [11], the precision medicine vocabulary, a type of controlled vocabulary for terms used in precision medicine, is built based on the method of data integration in the Unified Medical Language System. It now covers ten top semantic types, such as diseases, drugs, genes, and gene variation. A total of 1,372,967 concepts and 4,567,208 terms have been integrated from widely used databases related to precision medicine.

As seen from the above vocabulary description, it can be argued that learning specialize language can be the most challenging part for learners to master. They should first focus on learning frequent words, which reflect learners’ real-life needs [12]. In particular, specialized vocabulary in English causes unique difficulties for foreign language learners. Challenges encountered by medical students when learning English technical terms have been widely analyzed. Rahmatullah [13] found that students still faced problems in

vocabulary learning, such as pronouncing words, spelling, using its' grammatical function, telling its meaning, and using its idiomatic expression.

The above findings were aligned with those of other studies. Afzal [14], for example, investigated the problems faced by primary English students while they studied English at a university in Saudi Arabia. Notably, these students had difficulties guessing the meaning of new words, pronouncing new words, using new words correctly, and memorizing and spelling new vocabulary.

Similarly, Zheng [15] found that students have difficulties collating words when learning specialized vocabulary in English. Luo [16] studied a cohort of Chinese Medical College students to learn their difficulties, attitudes, and preferences in using a phone application to learn specialized vocabulary. Two hundred and eighty-two students participated in this study, and a questionnaire survey was used to collect data. The findings showed that Chinese medical university students had some difficulties learning English vocabulary in terms of spelling, pronunciation, word meaning, and even using words. Le et al. [17] explored a group of students majoring in sociology to examine their learning of English vocabulary for labor and social affairs at Hong Duc University. They recruited 30 sociology students for the survey and discovered that students had difficulties understanding the meaning of words and faced problems due to too many specialized English words required in the course.

Moreover, researchers have emphasized many difficulties for students when learning specialized vocabulary in English, including the overcrowding of classes, too little time for the course, and the lack of materials and textbooks to support study. Hoang [18] researched nursing students' learning of ESP English vocabulary at Thai Nguyen Medical College using a survey of 125 students in the course between 2015 and 2018. Several problems of nursing students were found, such as no interest in specialized English, limited study materials and textbooks, overcrowded classes, and lack of practice environments.

Hamad [19] studied a group of students in their ESP vocabulary learning by using a questionnaire to collect data from 30 ESP teachers from Sudan University of Science and Technology, Omdur-

man Islamic University, and Elahfad University in Khartoum State, which represent all of the universities in Sudan. The research found several difficulties limiting students' learning of specialized vocabulary in English, including the ESP course focused on structure and grammar rather than technical English vocabulary, and the study time frame was too little.

Abdallah et al. [20] conducted a study to see what hindrances college engineering students met when learning specialized English vocabulary at the College of Engineering. The research used an analytical, questionnaire-based method, and highlighted problems such as large classes, no specific materials regarding their fields of study, and insufficient time inside the class to learn more new terms.

Wu [21] surveyed a group of nursing staff enrolled in a required medical terminology course to explore their learning difficulties in their ESP courses. The survey results indicated that lexical abstraction was the biggest difficulty reported by most participants, followed by pronunciation, word length, and spelling. Furthermore, the study suggested that word morphology should be preferred when teaching EFL/ESP vocabulary.

Khan [22] conducted a study on difficulties in mastering and using ESP medical vocabulary. This study aimed to analyze the difficulties that hospital professionals encounter when using medical vocabulary. To carry out the analysis, the researcher recruited 76 trainees who attended a training/professional development course on medical terminology. The survey results indicated that most practitioners had difficulties related to borrowing English, Greek, and Latin, had problems with word structure, and lacked opportunities to practice.

In summary, when learning specialized vocabulary, past studies have suggested that students encounter many issues when learning ESP, including word pronunciation, multi-syllabic words, spelling, lack of learning materials, lack of vocabulary exposure, limited English proficiency, too many specialized vocabularies to memorize, and lack of environments to practice specialized words.

III. RESEARCH METHODOLOGY

A. *Participants, place and time of the study*

This study recruited 214 medical students who enrolled in the academic year 2021-2022 at Tra Vinh University. At the time of the study, they were in their third year in the bachelor program. There are three reasons for choosing these participants to answer the questionnaire and participate in the interview. First, they had finished their compulsory courses in General English (12 credits in total) and had passed their required specialized English courses in their program, so they were deemed to have experience in learning English both for general and for specific purposes. Second, it was ideal to listen to their opinions about their required medical English courses as the information can be useful to further develop how to teach and learn medical English more efficiently.

B. *Method*

To investigate the significant obstacles to learning specialized vocabulary in English for medical students, the researchers used a quantitative approach to collect data via questionnaire. The study applied a five-point Likert questionnaire (1 for strongly disagree, 2 for disagree, 3 for neutral, 4 for agree, and 5 for strongly agree), focusing on the participants' difficulties in learning specialized vocabulary in English. The content of the questionnaire was adapted from Hamad [19], who investigated ESP difficulties encountered by EFL learners and offered valuable recommendations for improving and enhancing ESP. Because Hamad's questionnaire aligned with the purpose of the study, the authors applied it to investigate students' perceptions of learning ESP at Tra Vinh University. The questionnaire was designed, evaluated and revised to improve its clarity, validity and reliability by piloting it twice with two senior English teachers and then five medical students. The questionnaire was then given to the 214 students who volunteered to participate in the survey. Finally, data were collected and analyzed using the software SPSS version 25 to ensure question reliability and produce descriptive statistics.

IV. RESULTS AND DISCUSSION

Regarding steps in the framework of Nation's and Qian's vocabulary knowledge theory, the researchers surveyed the medical students' English learning perspectives [8, 10]. The analysis mainly focused on answering the research question: What are the medical students' perspectives of their required medical English courses? Furthermore, the frequency distribution was computed using SPSS to examine variables in students' learning of ESP.

Firstly, as shown in Table 2, students' general perspectives on the importance of medical English and the content of the curriculum varied.

According to Table 2, the mean score for the item 'Medical English is very important' ($M = 4.40$, $SD = 0.94$) occupied the highest mean of 4.40 among the five questions. It suggested that medical students highly appreciated the importance of medical English courses. Notably, the students were interested in studying specialized English ($M = 3.93$, $SD = 0.87$) but still had considerable difficulties learning this kind of vocabulary ($M = 3.91$, $SD = 0.86$). Specialized vocabulary in English was a complicated and challenging issue for students ($M = 3.87$, $SD = 0.89$). Also, their learning obstacles were from the content of the course curriculum ($M = 3.65$, $SD = 0.90$).

Secondly, due to the students' perspectives of the course's importance, they had clear objectives for learning this English, as illustrated in Table 3.

Table 3 shows that students needed to learn and improve their specialized vocabulary for the reasons listed in Table 1. On the one hand, most students learned specialized vocabulary to read textbooks and understand their learning materials. This statement received the highest mean ($M = 4.24$, $SD = 0.84$). In contrast, many students wanted to improve their specialized English lexical resources to find a suitable job after graduation ($M = 4.15$, $SD = 0.86$). On the other hand, the others wanted to pass tests, such as mid-term tests, final tests, and prepare for their future internships and dissertations ($M = 3.60$, $SD = 0.94$).

Table 2: Students’ perspectives of the required medical English courses

Content	N	Minimum	Maximum	Mean	Std. Deviation
Medical English is very important	214	1	5	4.40	.938
I am very interested in studying specialized English	214	1	5	3.93	.872
Learning specialized vocabulary in English is harder and more challenging	214	1	5	3.87	.882
The content of the curriculum is difficult	214	1	5	3.65	.895
I have some problems in learning specialized vocabulary in English	214	1	5	3.91	.856

Table 3: Students’ goals

Content	N	Minimum	Maximum	Mean	Std. Deviation
Want to do tests (mid-term test, final test) of ESP courses	214	1	5	3.60	.943
Want to read textbooks and learning materials	214	1	5	4.24	.837
Want to find a job	214	1	5	4.15	.856

Thirdly, the main aim of this study was to examine the vocabulary learning problems of the students and suggest practicable strategies to fix their potential issues. The analysis showed that medical students encountered various problems, as shown in Table 4.

Table 4 shows that specialized vocabulary in English is complex for the students to learn. A relatively high percentage of respondents agreed with the statement ‘Specialized English vocabulary is long and difficult to remember’ (M = 3.73, SD = 0.93). Other problem factors for the students were the limited specialized vocabulary in English that affected their learning efficiency in the course (M = 3.49, SD = 0.99), and their ‘English ability is not proficient enough to handle medical English course requirements’ (M = 3.46, SD = 0.93). These were just their capacity problems preventing them from effectively learning English.

Next, the study analyzed factors affecting students’ difficulties with ESP related to curriculum and materials. Its findings are presented as follows. Table 5 describes students’ difficulties when learning specialized vocabulary in English, including having too much vocabulary in a lesson, which was the biggest problem, indicating that students spend a lot of time learning and remembering high quantities of vocabulary (M = 3.82, SD = 0,83). Another issue that played an important role was the primary materials of

specialized vocabulary in English, as students indicated that they were not offered enough rich references sources in their learning process (M = 3.36, SD = 0.95).

The participants also admitted that they also encountered learning problems due to the teaching methods, as shown in Table 6. The data in Table 6 suggests that the time frame for the English program was too little for students to learn the vocabulary (M = 3.69, SD = 0.91), and the time for teaching was also insufficient. Furthermore, the data also indicated that most respondents did not have the effective English environments to practice specialized words and improve their vocabulary. As seen in Table 6, the average score for this was relatively high (M = 3.63, SD = 0.94).

Besides the above factors affecting the respondents’ learning of ESP, further analysis explored the specific difficulties students most often encountered. As presented in Table 7, students encountered various issues that restricted their English skills in general and specialized vocabulary in particular.

Table 7 shows that most students (59.8%) had difficulties in remembering the exact meaning of the specialized terms of the course, how to use them in the proper context, or fully understanding and distinguish different terms from each other. The exact meaning of a technical term cannot be found in a conventional dictionary due to

Table 4: Internal factors affecting students’ difficulties when learning specialized English

Internal factors	N	Minimum	Maximum	Mean	Std. Deviation
Specialized English vocabulary is long and difficult to remember	214	1	5	3.73	.929
Learner English ability is not good enough to handle medical English course requirements	214	1	5	3.46	.932
With limited English vocabulary, learner cannot learn medical English course well	214	1	5	3.49	.992

Table 5: Curricular factors affecting students’ difficulties when learning specialized English

Curricular factors	N	Minimum	Maximum	Mean	Std. Deviation
There are many specialized words in each lesson	214	1	5	3.82	.831
Source of references is not rich for students to refer	214	1	5	3.36	.953

Table 6: Instructional factors affecting students’ difficulties when learning specialized English

Instructional factors	N	Minimum	Maximum	Mean	Std. Deviation
Learner has fewer opportunities to practice and apply specialized vocabulary in English	214	1	5	3.63	.940
Limited hours of instruction will weaken the effects of learning specialized vocabulary in English	214	1	5	3.69	.914

Table 7: Specific difficulties affecting student’s learning of ESP

Specific difficulties		Responses		Percent of cases
		N	Percent	
Other difficulties	Remembering terms	128	26.7%	59.8%
	Comprehension of the meaning	118	24.6%	55.1%
	Abbreviated terms	101	21.0%	47.2%
	Spelling and pronunciation	124	25.8%	57.9%
	Other (grammatical functions and collocations)	9	1.9%	4.2%
Total		480	100.0%	224.3%

its usage for each specific context. That was one of the causes of students’ difficulties in learning specialized lexical resources. Another problem for many students (57.9%) was spelling and pronunciation. In contrast, they were still confused

about choosing the appropriate meaning of the words (55.1%). Then, they were also worried about spelling sophisticated abbreviated terms (47.2%). Lastly, the remaining students added more learning difficulties, such as grammatical functions and collocations, which were difficult to write, read and use in tests, exams, and real-life communication (4.2%).

Based on these findings, most of the medical student participants at Tra Vinh University strongly agreed on the importance of the medical English course. The findings suggest that when they learn many specialized vocabularies and have access to relevant resources, students find it easy to express the exact meaning of specialized English terminology. They had a particular interest in learning specialized vocabulary in English because of its practical application in their field.

Although specialized English plays a crucial role in the student’s learning, students tend to encounter various difficulties, such as internal obstacles, the materials for specialized vocabulary in English, and teaching methods.

Participants confessed that there were too many English words for each topic or that the words were too long. Also, students' English vocabulary was not good as they lacked an environment to practice, and they found it hard to remember the terminologies and to even follow instruction. These results are consistent with the study conducted by Hoang [18], who stated that students at Thai Nguyen University also had similar difficulties due to too many specialized words to learn, and long and complex specialized vocabulary in each lesson. The students also lacked basic English knowledge, practice environments, and opportunities to apply learned vocabulary. Hamad [19] also mentioned that the difficulty for students' studying specialized English was the teaching hours devoted to ESP courses, which were considered insufficient, suggesting ESP teachers need more training to teach more effectively.

As shown in the above results, most learners faced difficulties remembering specialized English terms, comprehending the meaning, and learning spelling and pronunciation, grammatical functions and collocations. The reasons were that specialized English texts like those focusing on English for medical professionals included many new and challenging terminology for students who have different levels of English proficiency. Teachers should use various means or tools to learn new words, not just focus on the specific method, such as teaching terminologies through comprehension. This is supported by Rohmatillah [13, p. 82] who also confirmed students' difficulties in pronouncing words.

English learners often face problems discovering and memorizing the meanings of new words, as those suggested in studies by Altyari [23] and Farjami et al. [24]. Similarly, Lou [16] also found that Chinese medical college students had difficulty pronouncing English words, understanding their meaning, and using such words in their daily lives. Qian [10] also suggested that, for students to learn specialized English, they need to develop vocabulary knowledge that includes an in-depth understanding of each term's meanings, syntax, sound structure, and pronunciation. Then, Tran [25] stated that students in the International

Business and Logistics Department of Vietnam Maritime University had difficulty remembering and looking up related words. Like these studies, this study reflected a high percentage of medical students who admitted that they had been facing problems in learning specialized vocabulary.

V. CONCLUSION

This study found that the students appreciate medical English and are interested in learning specialized vocabulary in English, and it revealed that the problems or difficulties faced by medical students at Tra Vinh University when learning specialized vocabulary in English were varied. The results showed that the participants faced many internal challenges. One example is that specialized words in English are usually multi-syllabic, which prevents Vietnamese medical students from enunciating and memorizing them. Other challenges were found are that medical students who tend to have limited specialized vocabulary, do not seem to agree with the quantity of specialized vocabulary in each lesson, and complain about insufficient learning resources. Moreover, they tend to be discontent with the teaching curriculum, such as inadequate time allocated for ESP courses and the lack of opportunities to practice and apply new words learned in class in their daily life. Due to these factors, nearly all participants had problems with identifying meaning, abbreviated phrases, grammatical functions, and collocations.

Based on the above research results, we would like to make suggestions for students, teachers, and other stakeholders, such as the Faculty of Specialization and the Faculty of Foreign Languages at Tra Vinh University. Students should choose a learning style suitable for remembering many specialized words quickly and understanding multi-syllabic terms. For example, they could build sentences better if they used a bilingual dictionary or read specialized materials in English, or if they practice spelling, word lists or flashcards, word grouping, semantic work maps, keywords, combining visual and aural imagery, and word-of-concept association. Moreover, learners should try to engage more in classes and have discussions with their instructors to explain complex terms and definitions further. In addition,

two common characteristics of efficient learners should be having an interest in learning and having a goal. Thus, students with a positive attitude can use those methods frequently. Furthermore, keeping effective learning habits can improve learning efficiency. Vocabulary learning results can be directly related to students' effort. It is even more critical for students to enhance their ability to learn specialized vocabulary. As science and technology develop, many practical learning methods are increasingly needed. For faculty leaders, it is necessary to research and consider adding time to the course so that students have time to study and do intensive research. In addition, the related faculties can organize many practical activities and experience-sharing forums so that students have many opportunities to use and apply new words to increase the effectiveness of learning specialized vocabulary in English. Besides, to optimize teaching methods, the Faculty of Specialization and the Faculty of Foreign Languages should offer training in specialized English for students at the university. The cooperation of specialized and content lecturers with foreign language teachers will help students have a solid foundation of specialized knowledge and enhance their English ability.

REFERENCES

- [1] Mohan BA. *Language and content reading*. Addison Wesley Publishing Company; 1986.
- [2] Hutchinson T, Waters A. *English for specific purposes*. Cambridge: Cambridge University Press; 1987.
- [3] Ibrahim AI. ESP at the Tertiary Level: Current Situation, Application and Expectation. *English Language Teaching*. 2010;3(1): 200–204.
- [4] Ouarniki W. *The current situation of English for specific purposes courses at university level: Analysis, evaluation and perspectives* [Master's Thesis]. Mohamed Khider University; 2011.
- [5] Chung TM, Nation P. Identifying technical vocabulary. *System*. 2004;32(2): 251–263.
- [6] Hou HH, Hou HI. Teaching specialized vocabulary by integrating a corpus-based approach: Implications for ESP course design at the university level. *English Language Teaching*. 2014;7(5): 26–37.
- [7] Le Pham Hoai Thuong, Thach Thi Hai Huyen. Students' strategies in learning English specialized vocabulary. *Journal of Science and Education*. 2017;04(44): 35–43.
- [8] Nation IS, Nation IS. *Learning vocabulary in another language*. Cambridge: Cambridge University Press; 2001.
- [9] Nation ISP. *Teaching and learning vocabulary*. New York: Newbury House; 1990.
- [10] Qian DD. Investigating the relationship between vocabulary knowledge and academic reading performance: An assessment perspective. *Language Learning*. 2002;52(3): 513–536.
- [11] Wu M, Liu Y, Kang H, Zheng S, Li J, Hou L. Building a controlled vocabulary for standardizing precision medicine terms. In: *KDD'18: The 24th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*. London, United Kingdom; 2018.
- [12] Truong Thi Anh Tuyet. A study on challenges and solutions for specialized English teaching and learning in the context of international integration. *ArXiv*. 2021. Available from: <http://org/10.31235/osf.io/qhyr2> [Accessed 01/8/2022]
- [13] Rohmatillah R. A study on students' difficulties in learning vocabulary. *English Education: jurnal tadris bahasa Inggris*. 2014;6(1): 75–93.
- [14] Afzal N. A study on vocabulary-learning problems encountered by BA English majors at the university level of education. *Arab World English Journal (AWEJ)*. 2019;10(3): 86–92.
- [15] Zheng S. Studies and suggestions on English vocabulary teaching and learning. *English Language Teaching*. 2012;5(5):129–137.
- [16] Luo Y. English vocabulary learning difficulties, attitudes and preferences towards the use of mobile application for vocabulary learning. *Journal of Literature, Culture and Society*. 2020;9(2): 73–100.
- [17] Le Thi Minh, Hoang Kim Thuy. The situation of learning specialized English vocabulary through reading passages of students majoring in Sociology, Faculty of Social Sciences, Hong Duc University (Thực trạng học từ vựng trong các bài đọc hiểu tiếng Anh chuyên ngành xã hội học của sinh viên ngành Xã hội học, Khoa Khoa học Xã hội, Trường Đại học Hồng Đức). *Journal of Education*. 2016; Special Issue: 139–142.
- [18] Hoang Thi Thu Hoai. Difficulties in teaching and learning ESP vocabulary for nursing students at Thai Nguyen Medical College and some solutions. *Journal of Science & Technology*. 2018;183(07): 129–134.
- [19] Hamad MH. *Investigating of ESP vocabulary difficulties encountered by EFL learners* [Doctoral dissertation]. Sudan University of Science and Technology; 2014.
- [20] Abdallah AY, Mohamed EA. Investigating difficulties facing university engineering students in learning specialized English vocabulary. *Journal of Humanities Sciences*. 2015;16(1): 1–12.
- [21] Wu LF. Technical college students' perceptions of English for specific purposes vocabulary learning and

- teaching. *International Journal of English Language Education*. 2014;2(1): 176–186.
- [22] Khan IA. Difficulties in mastering and using English for specific purpose (medical vocabulary): A linguistic analysis of working Saudi hospital professionals. *International Journal of Education*. 2016;8(1): 78–93.
- [23] Altyari AW. English vocabulary uptake by Saudi Arabic speaking students at public schools. *British Journal of English Linguistics*. 2017;5(1): 10–16.
- [24] Farjami F, Aidinlou NA. Analysis of the impediments to English vocabulary learning and teaching. *International Journal of Language and Linguistics*. 2013;Special Issue 1(4-1): 1–5.
- [25] Tran Thi Phuong Thao. *A study on techniques to learn and improve specialized English vocabulary for the third-year Logistics major students at Vietnam Maritime University* [Doctoral dissertation]. Hai Phong Management and Technology University; 2020.

