VOCABULARY ACQUISITION IN ENGLISH FOR MEDICINE - STUDENTS' PERSPECTIVE

Adriana Zafirovska[1], Brikena Xhaferi[2]

[1]EF-Education First, Tarrytown, New York,
[2]Faculty of Languages, Cultures and Communication, Tetovo, North Macedonia

Abstract*. The acquisition of vocabulary is a rather complex and lengthy process, and as such, it has earned immense research priority in second or foreign language acquisition. An entire division of second language acquisition is dedicated to learning strategies and taxonomies in ESL/EFL to enable students to recognize and take advantage of a variety of options for vocabulary acquisition. Students are diverse, and their needs are diverse. In the field of medicine, many professionals are internationally trained, and to express ideas clearly in English, they need to be proficient in language. Thus, they need appropriate ESP jargon and vocabulary. To serve these diverse needs of students to the fullest, teachers need to be equipped with the latest methods of teaching vocabulary acquisition. The present study aims to present the already established learning strategies for vocabulary acquisition from specialized English books related to Medical English and explore what medical books offer in terms of vocabulary acquisition, and present students' opinions regarding vocabulary acquisition and learning strategies. Finally, to propose and give some new insight and ideas to scholars for curriculum development of English for medicine. Based on data collection, i.e., students' questionnaires, the results showed that the ESP textbooks for medicine should be interactive and precise and not overwhelm students with general notions and ideas. As a crucial tool of instruction and curriculum design, needs analysis should be performed to give instructors and administrators an exact idea of what students want and need to succeed in their future professions. Computer-assisted vocabulary acquisition is a very likeable element of ESP medical textbooks. Thus, it should be a dominant part of ESP materials for medicine and other ESP fields.*

Key words*: English for medicine, vocabulary acquisition, ESP medical textbooks, students' perspectives in ESP*

1. INTRODUCTION

As a learner-centered approach, ESP involves adult learners who have already acquired intermediate and advanced English proficiency. It is related to all the disciplines and aspects of life, serving ESP students with the appropriate skills they require for their professions. Hutchinson and Waters (1987, p.6) discuss the appearance of ESP in the

1960s because of three main changes. The first change was the great demand for English after World War II. This era brought a rise to the "... age of enormous and unprecedented expansion in scientific, technical and economic activity on an international scale for various reasons, most notably the economic power of the United States in the post-war world, the role [of international language] fell to English." The second change was the new revolution in linguistics. Instead of talking about elements of languages, the linguists tried to present how language is used in real-life situations. Thus, depending on the situation, different language was used. The ESP scholars adopted the principle: "tell me what you need English for, and I will tell you the English that you need." (Hutchinson and Waters, 1978, p.8) This brought on the third change in the field of educational psychology. Educational psychology stresses the significance of the learners and their attitudes to learning. New ideas in Education Psychology geared the attention towards the learners, recognizing diverse learners.

The acquisition of vocabulary is a rather complex and lengthy process, and as such, it has earned immense research priority in second or foreign language acquisition. An entire division of language teaching is dedicated to learning strategies and taxonomies in ESL/EFL to enable students to recognize and take advantage of a variety of options for vocabulary acquisition. Viel (1988) pointed out, "Vocabulary acquisition is and has always been one of the core activities in foreign language learning, whether it is for general purposes or professional ones - very simply because no communication is possible without words."

Throughout the years, the focus on vocabulary acquisition has been branching in the direction of the acquisition of vocabulary for English for Specific Purposes. Acquiring vocabulary for English for Specific Purposes is essential because it enables specific ESL students to learn and use appropriate jargon for their respective fields, and it significantly eliminates the possibilities of errors, misunderstanding, and misinterpretation. Second or foreign-language learners try hard to avoid mistakes when communicating and conveying their ideas in English. Each professional field has its importance and relevance. However, ESL medical students need to prevent errors simply because correct medical vocabulary is crucial because medical errors can easily be fatal.

This study aims to shed light on vocabulary learning strategies used to learn medical English and provides some textbook analysis data. Furthermore, students' opinions and experiences are presented and discussed in detail. Based on the data collected, we will try to provide some new ideas for researchers, educators and curriculum developers when creating programs of study for learning new medical words in English. Most importantly, the study emphasizes the importance of students' motivation in vocabulary acquisition for ESP for medicine.

The main objectives of this study are to investigate the vocabulary acquisition strategies employed by ESP medical textbooks and determine if the vocabulary acquisition strategies for ESP for medicine used by students are effective and efficient for vocabulary retention and usage and, in this context, to propose the development of new teaching materials for ESP vocabulary for medical students.

This study addresses the following research questions:

1) What are the vocabulary acquisition strategies for ESP for medicine from ESP medical textbooks?

2) Which acquisition strategies are employed by students for effective and efficient ESP vocabulary retention and usage?

3) How can ESP professionals develop new teaching materials for ESP vocabulary for medical students?

To serve these diverse needs of students to the fullest, teachers need to be equipped with the latest methods of teaching vocabulary acquisition. Hopefully, this research will precisely do that, provide the latest methods of teaching vocabulary acquisition for medical students, and serve its purpose in ESP for Medicine.

2. LITERATURE REVIEW

ESP emerged due to the need to satisfy specific students' needs, prioritizing their language needs instead of overwhelming them with general notions. Robinson (1991) notices two characteristics of ESP, "goal-directed" and "needs analysis." ESP requires needs analysis because it "aims to specify as closely as possible what exactly it is that students have to do through the medium of English." (Robinson, 1991). It is often suggested that even though ESP is closely related to ESL or EFL, ESP should be more flexible. What does this mean? This means that the ESP teacher must be able to work with a heterogeneous group, i.e., a group with different English proficiency skills. ESP learners often have intermediate English proficiency, but this is not always the case. Thus, the ESP teacher must be prepared to fill ESL students' missing proficiency gaps. ESL focuses on all four sills. It delivers general English knowledge and builds the foundation for ESP. ESP does not necessarily teach all four skills simultaneously; it focuses on one or two skills at a time. This does not mean it does not teach all four skills; it simply prioritizes the skills according to the students' needs. For example, English for negotiation concentrates on speaking skills for negotiations. English for medicine can focus on vocabulary for patient charts or how to write a prescription, English for dentistry can focus on topics related to dentistry, and so on.

Fiorito (2005) stresses that in ESP classes, English should not be used in isolation but in appropriate authentic texts for the respective fields. Using English in relevant texts will enable learners to learn the ways and situations they need to use the language in their perspective fields. If ESP students learn English in isolation, without meaningful and authentic texts, they will be less motivated to attend classes and to learn. Moreover, since these ESP students have already chosen these specific fields for their future professions, learning English will only complement their choice. Vocabulary acquisition of specific terminology remains the most challenging area for ESP learners. In fact, teaching English for medical purposes should provide diversification, a multilevel approach, and focus on both the medical professional and the student's personality, as well as correspond to actual trends in medical education (Gavrilyuk, Markovina and McFarland, 2019, p.350)

"ESP vocabulary can be referred to in several ways: special purpose vocabulary, specialized vocabulary, technical, or sub-technical vocabulary" and it "characterizes ESP vocabulary as the vocabulary of a particular subject area at university or vocabulary specific to a professional discipline" (Coxhead 2015 cited in Vrběcká 2019, p.50). While Dudley-Evans – St John (2012) differentiate technical vocabulary from semi-technical vocabulary by emphasizing that teaching technical vocabulary should not be considered a task for an EAP teacher, "and that classroom priority should be given to semi-technical vocabulary or core vocabulary. They characterize semi-technical or core vocabulary as vocabulary that is used in general language but has a higher frequency of occurrence in the scientific and technical description and discussion" (2012, pp. 82-83). Dudley-Evans – St John (2012, p. 83) further define ESP vocabulary according to its purpose: the

vocabulary needed for comprehension and vocabulary needed for production (as cited in Vrběcká 2019, p.51.). Schmitt & McCarthy (2011, p. 38) believe that "Written language is usually more complex than spoken language. Sentences are longer and sometimes more intricate in written English than in spoken English. A comparison between spoken and written vocabulary leads us to believe that spoken language is the main source of exposure to the language for communication, but written language will always remain a fundamental source of input for language learning." Carrasco-Flores and Alcaraz-Mármol (2020, p.265) found that "these textbooks are mainly meaning-focused, although some differences as regards the extent to which each of these elements is promoted can be found".

ESP learners learn new vocabulary using various strategies in their native languages because learning a language is a life-long process. Therefore, ESP learners can apply these language learning strategies from their native language to learn the English vocabulary necessary for their fields. Nonetheless, very often, the already established vocabulary acquisition strategies provide neither immediate nor permanent learning solutions but gear the learners towards the right path, i.e. the learning strategies often present a learner with a combination of learning strategies which can suit each learner individually, according to his/her preferred style of learning and needs.

3. RECENT STUDIES

Many studies have been done on vocabulary acquisition for ESP. This proves that the time has come when specific students' needs are closely considered and addressed. These studies reveal the necessity to address the particular students' needs, which cannot be addressed and acquired from General ESL classes. Akbari and Tahririan (2009, p.5), in their research on Vocabulary Learning Strategies in an ESP Context, propose that "Schmitt's (1997) taxonomy seems to be the most exhaustive and has the advantage of being organized around an established scheme of language learning strategies." They conclude several things. First, "the most frequent comprehension strategy was using bilingual dictionaries, and the most commonly used learning strategy was oral and/or written repetition" (Akbari and Tahririan, 2009, p.47). Second, three factors played an essential role in the students' choice of VLSs, i.e., person-related factors, task-related factors, and context-related factors. And finally, Schmitt's taxonomy can be modified and developed for ESP studies and a specific context.

Additionally, Johnson and Olive (1999) worked with 349 medical students and 20 faculties at Chung Shan Medical College in Taichung, Taiwan. In their study "English for College Students in Taiwan: a Study of Perceptions of English Needs in a Medical Context", "the English language needs of medical college students in Taiwan were assessed to increase teaching and learning effectiveness" (p. 108). The purpose of this study was: "To identify and describe the perceptions that medical college students and their faculty have of English language needs". Their results revealed several findings. First, students considered English an essential asset not only for their academic careers but for their future in general. Second, students wanted to be given a General English course during their freshmen year and improve their listening skills the most. And, finally, both students and teachers wished to study English for more than one year.

Finally, a study conducted by Razmjoo and Raissi (2010) aimed to evaluate the SAMT ESP Textbooks for the Students of Medical Sciences at Iranian universities from the

viewpoints of students and instructors to provide a clear picture of the status of those textbooks. The study addressed the following questions: (1) are SAMT textbooks designed for the students of Medical Sciences appropriate in terms of the theoretical considerations, the organizational features and practical considerations, the content, the language skills, the vocabulary and the grammatical structure from the instructors' and students' viewpoints?; (2) what is the students' and instructors' overall impression of the textbooks?; and (3) is there any significant difference among the students' and instructors' viewpoints? A quantitative design was used to evaluate ESP textbooks. Total of 147 students and 30 instructors took part in the study. The questionnaire consisted of 55 items, and the results indicated that instructors and students were not satisfied with most of the criteria which the SAMT ESP textbooks should fulfil.

Moreover, the results show no significant difference between the students. To conclude, all the studies mentioned above dealt with specific vocabulary learning strategies used by students in different settings, which is also the main aim of the present study. The studies described above investigated the already established VLS and their use in ESP, the factors related to students' choice of VLS, evaluation of already established ESP medical books and their effectiveness. The studies also presented students' and teachers' opinions on methodology, the use of bilingual dictionaries as an essential tool for vocabulary acquisition for ESP for medicine, and students' and teachers' opinions and suggestions for further ESP curriculum development.

4. RESEARCH METHODOLOGIES

4.1. Research Questions

The present study aims to find answers to the following research questions:
1) What are the vocabulary acquisition strategies for ESP for medicine from ESP medical textbooks?
2) Which acquisition strategies are employed by students for effective and efficient ESP vocabulary retention and usage?
3) How can ESP professionals develop new teaching materials for ESP vocabulary for medical students?

4.2. Research Hypothesis

Given the fact that ESP students aim to obtain specific ESP skills to apply them in their respective fields, this research study will attempt to prove the following hypotheses:
H1: Students are motivated to learn new ESP medical vocabulary in their ESP classes because they will use the newly acquired vocabulary in their future medical profession.
H2: ESP students retain and use new ESP medical vocabulary more efficiently once they acquire this ESP medical vocabulary from a medical context.

4.3. Research Participants

The participants of this study were international students attending a university preparation program in Tarrytown, New York, in the USA. The students were from the age of 19 to 28. They were of different races, nationalities, ethnical backgrounds, and English proficiency levels. There were 70 participants in this research study, 40 female and 30 male students.

4.4. Research Methods

The students' questionnaire (Appendix 1) was prepared and distributed among the students to determine students' opinions on activities and vocabulary learning strategies employed by medical ESP textbooks. Medical ESP textbooks were used to compare the vocabulary acquisition strategies they employ. Secondly, a students' questionnaire (Appendix 2) was distributed among students to determine students' use of vocabulary acquisition strategies. The questionnaire was distributed to get an in-depth perspective on students' study habits, likes and dislikes, needs and strategies used to learn medical vocabulary at the University.

4.5. Research Procedure

The first questionnaire distributed to the participants contained 24 questions. It asked the participants to provide an answer by selecting from multiple choices or giving a brief answer. The purpose of the questionnaire was to gather information on students' opinions on the activities and strategies employed by the current ESP medical textbooks. The questionnaire also asks for background information on the students.

The second instrument was sent online to the participants and aimed to reveal the vocabulary learning strategies employed by the students. It gathered information on students' choices for vocabulary acquisition strategies.

5. RESULTS AND DISCUSSION

5.1. Students' opinions on ESP medical textbooks

The questionnaire was distributed among fifty-five students. It had twenty-five questions and obtained background information about the students, such as their gender, age, major, proficiency level, and years of studying ESL.

Table 1 Background information on the participants 1

Gender	Age	Major	Years of studying English	English proficiency level
Male: 20 Female: 35	19-28	Medicine: 50 Nursing: 3 Software Engineering: 2	3 years to more than 10 years	Pre-intermediate: 5 Intermediate: 25 Post-Intermediate: 14 Advanced: 10 Native-like fluency: 1

Analyzing Table 1, it can be seen that the study participants had different majors, i.e. 50 students had a major in medicine, 3 students had a major in nursing, and 2 students had a major in software engineering. The students majoring in software engineering were asked to participate in the survey because they were working on software programs for medical institutions. These two students attended the ESP course for medicine to acquire the necessary medical terminology to implement in the software programs they were creating. The students studied ESL from 3 years to more than 10 years. Therefore, the proficiency levels of the students varied. There were 5 students at the pre-intermediate level, 25 students at the intermediate level, 14 students were at the post-intermediate

level, 10 students were at the advanced level, and only 1 student had native-like fluency. This shows that the ESP students had the necessary basic ESL skills to be able to participate in the ESP course.

Question 6 asked students the following: "What type of vocabulary activities do you like?" The results are presented in the following figure:
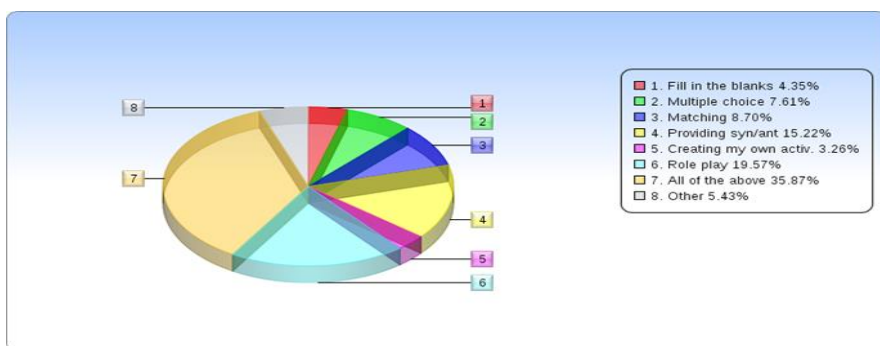

Fig. 1 Vocabulary activities that students like

From Figure 1, we can see that around 36% of the participants like all 6 activities: role play, providing synonyms/antonyms, creating their own activities with the new vocabulary, multiple choice activities, matching, and fill-in-the-blanks. Total of 20% of the participants like only role-play activities, 15% of the participants like only providing synonyms and antonyms for the new vocabulary, 9% of the participants like only matching, 8% like only multiple choice, 4% like only fill-in-the-blanks, and 3% like to create their own activities with the new vocabulary. There 5 % of the participants do not like the activities mentioned above, but like other types of vocabulary activities, such as crossword puzzles, word searches, mnemonics, drill and repetition, and creating projects. Obviously, role play is the most liked vocabulary activity.

Question 7 asked the students, "What type of activities you do not like?" The results are shown in the following figure:
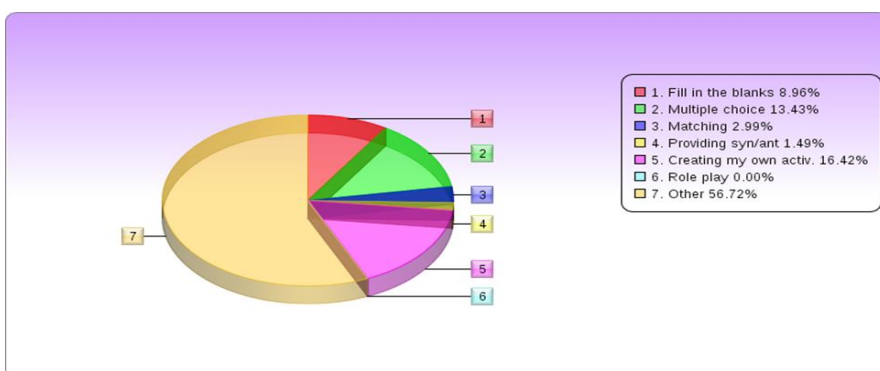

Fig. 2 Vocabulary activities students do not like

From Figure 2, we can see that 9% of the participants do not like fill-in-the-blanks activities. 13% of the participants do not like multiple-choice activities, 3 % of the participants do not like matching activities, 1% of the participants do not like activities in which they have to provide synonyms/antonyms, 16% dislike using the new vocabulary to create their own activities. And 57% of the participants listed other types of activities they do not like, such as providing a summary, and guessing the meaning from context, because they do not understand most of the words. While 57% of the participants also mentioned that they do not like vocabulary activities in which they have to unscramble the vocabulary; then vocabulary activities for predicting, correcting errors, drill and repetition, constructing paragraphs, crossword puzzles, and word searches. The activity role-play has yet to be listed as a vocabulary acquisition activity which students do not favor.

Question 8 inquired the following: "Why are you taking the Academic Vocabulary (ESP for medicine) class?" The results for this question are presented in the following figure:
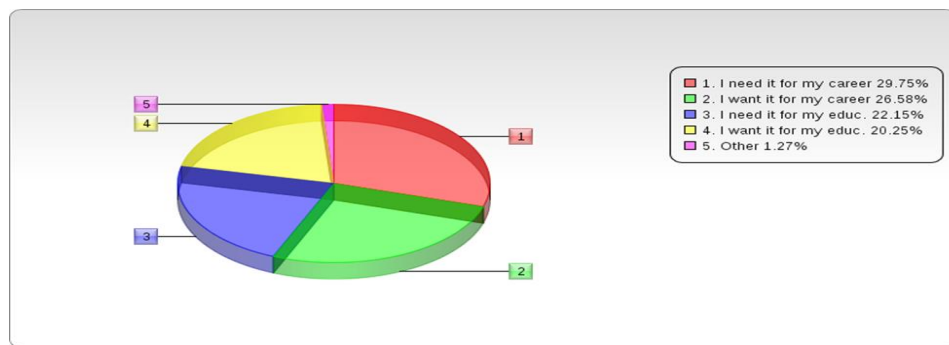

Fig. 3 Reasons for taking the vocabulary ESP class

As can be seen from the above Figure, 30% of the participants answered, "I need it for my career." 27% answered, "I want it for my career." Then, 22% said, "I want it for my future education." 20% said, "I want it for my future education." Further, 2% gave other reasons for taking the class, and 1% of them answered, "I want it and need it for my future education to become a doctor," and the other 1% said, "I need it, and I want to take it for my future education to get a good job."

Question 9 asked the students, "What type of activities did the ESP medical books provide?" All fifty-five participants, i.e., 100%, agreed that the medical ESP books provided a mixture of activities, and different types of learners could find vocabulary acquisition activities suitable for their needs.

Question 10 raised the following issue: "What did you like about the ESP medical textbooks?" The results show that 61% of the participants liked all types of activities from the books, while 18% of the participants specifically pointed out the role-play activities. The remaining 21% mentioned the online vocabulary activities, the over-to-you part, and the video and audio presentations.

Question 11 asked the students: "What didn't you like about the ESP medical textbooks?" From the results, it can be seen that 11 do not like the fill-in-the-blanks activities, 5% do not like providing my own definition, and 68% like everything about the ESP textbooks. The remaining 16% mention other reasons why they did not like the ESP textbooks, such as:

having only two ESP books for nursing, while all the other books were ESP books for medicine; having too many books instead of one book with all the topics, the books had general medical terms instead of terms related to specific fields of medicine, providing their own definition because they often misunderstand the vocabulary, and the multiple choice activities because the answers were very similar, but only one answer was correct.

Question 12 asked the students to name the purpose for which they used the textbooks. There 53 students said they use the textbooks for both classwork and homework, and 2 students said they only use the textbooks for homework.

For question 13: "Do you think the ESP textbooks can be improved?", 15 students answered "yes", 20 students answered "no", 14 students answered maybe, 5 students suggested improvement in terms of having one book instead of 5, and 1 student replied, "I do not know."

Question 14 asked the students: "Were you able to understand and learn the medical vocabulary from the ESP textbooks activities?" Nobody said that they were not able to understand, 85% said they were able to understand, 5% said they were able to understand sufficiently, and 1% said that there were able to understand the medical vocabulary "only a little." The remaining 7% said they would need more classes to use the medical vocabulary confidently because they need more practice and ESP classes.

Question 15 asked the students if the ESP medical textbooks came with additional materials. All fifty-five participants, or 100%, said "yes".

"In your opinion, what type of additional materials should ESP medical textbooks include for easier vocabulary acquisition?" was question 16 of the survey. Total of 51 participants said ESP medical textbooks should include role-playing scenarios, flashcards, medical projects, and audio and video recordings of actual medical situations, 2 participants suggested only medical projects, and the remaining 2 suggested only audio and video recordings of actual medical situations.

Question 17 asked the following: Based on the textbooks' activities, what did you learn about ESP medical vocabulary? All fifty-five of the participants agreed that they learned the following about medical terminology:

- Medical vocabulary has Greek or Latin origin,
- Most medical terminology can be used in everyday life situations,
- Context is critical to understand medical terminology,
- Medical terminology has word associations, partnerships, and collocations,
- Medical and nursing terminology is similar but different,
- Medical terminology has specific expressions for symptoms, diseases and treatment, as well as expressions for charting and giving news to patients,
- Specific medical fields use specific medical vocabulary, but some words are more general and can be applied in all medical fields in general, and
- Medical terminology has many medical abbreviations that must be learned to save time in emergency medical situations.

Question 18 of the questionnaire suggested the following: "ESP textbooks for medical students should be designed for specific fields of medicine." All participants agreed that ESP medical textbooks should be designed for specific medical fields. Some medical terms are more general, but some are more specific and can be used only in particular fields; thus, specific ESP medical books should be designed for different types of physicians, nurses, pharmacists, dentists, acupuncturists, and so on.

Question 19 asked the following: "In your opinion, how should ESP medical textbooks differ from ESL textbooks?" The results are shown in Figure 4:
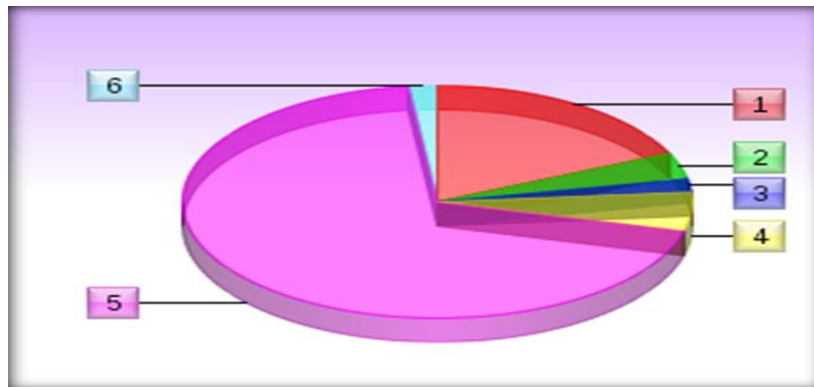

Fig. 4 Differences between ESP medical textbooks and general ESL textbooks

1 The ESP textbooks should have **role-play** activities based on scenarios for the specific medical field 18.18%

2 The ESP textbooks should concentrate on specific skills, based on what the ESP students need and want 3.64%

3 The ESP textbooks should have activities based on visual and auditory aids 1. 82%

4 The ESP textbooks should incorporate interactive projects related to specific fields of medicine 5.45 %

5 All of the above 69.09 %

6 Other 1.82%

Legend for Fig. 4

Based on the legend of Figure 4, it can be seen that 69 % of the participants said that ESP textbooks should:
- have role-play activities based on scenarios for the specific medical field,
- concentrate on specific skills based on what the ESP students need and want,
- have activities based on visual and auditory aids, and
- Incorporate interactive projects related to specific medical fields.

Only 4% of the participants said ESP textbooks should concentrate on specific skills based on what the ESP students need and want, and 2% said ESP textbooks should have activities based on visual and auditory aids. In comparison, 6% of the participants agreed that the ESP textbooks should incorporate interactive projects related to specific fields of medicine. The remaining 2% of the participant suggested that ESP medical textbooks should consist of interactive projects related to specific fields of medicine.

Question 20 asked, "Was your ESL teacher prepared to teach the ESP course and give appropriate explanations when necessary?" All participants agreed that the teacher was

prepared to teach the class and was very flexible because the class had students of different majors, proficiency levels, and everyone and other needs and desires, i.e. it was a heterogonous class. However, it would have been easier on the teacher and the students if the group of students was more homogeneous, i.e. the students were students of a specific medical field instead of belonging to different medical fields.

The answers to question 21, "Will you recommend these ESP medical textbooks to future students?" varied, so 89% of the participants said they would recommend the books, 4% suggested "maybe with some changes to the activities," and 7% gave new suggestions. They said that students should first choose their major and then take the class, there should be one textbook with all the topics because too many books can be confusing, and ESP medical textbooks should be designed for specific medical fields.

Question 22 asked the participants, "Did the ESP textbooks provide all the materials and info you needed for the acquisition of the new vocabulary, or you needed additional materials?" Here, 95 % of the participants agreed that the materials were enough and that they did not need additional materials. In comparison, 5 % said they needed additional materials because some topics related to specific medical fields were not covered in the ESP medical textbooks.

Question 23 inquired, "In your opinion, were the ESP medical textbooks used in your class interesting and motivating for ESP for medicine?" Total of 95 % of the participants said that the books were motivating and interesting and covered various topics and activities. However, 5% of the participants complained that even though there was a diversity of topics, they were more general than specific. Thus, future ESP medical textbooks should be designed for specific medical fields, and that way, many more topics and medical terminology will be covered.

Question 24 asked the participants, "Of all the ESP medical textbooks used in class, which one did you enjoy the most?" There was 25 % of the participants recommended the books Oxford English for Careers: Medicine 1 and 2, 21 % of them favored English in Medicine, and 21% selected Professional English in Use-Medicine, 4% of the participants preferred Oxford English for Careers: Nursing 1 and 2, 7% selected all the books, and 2% enjoyed the online materials the most.

The last question, the 25th, of the survey was a free text answer, for which the students had to give the reasons for choosing the book/books in question 24. The 2 students with a major in software engineering enjoyed all the books; since they are unfamiliar with medical terminology, the books provided them with an abundance of medical vocabulary; it made no difference to them whether it was for nursing or medicine. The 50 students with a major in medicine pointed out that they are interested only in the books for medicine because the books for nursing are designed for nurses, not doctors. However, they did complain that the books were not for specific medical fields but were more general in terms of medical vocabulary. And finally, the nursing students enjoyed the books for nursing because these books were related to their field of study.

5.2. Students' Questionnaire on Vocabulary Acquisition strategies for English for Medicine

The second instrument of this study was the questionnaire on vocabulary acquisition strategies for English for medicine. The questionnaire was distributed among seventy students, and it had fourteen questions. It was composed of questions for which the answers

were provided in a multiple-choice option and a free-form answer option. It was done electronically after the ESP course had finished. It gathered students' background information on age, gender, educational major, English proficiency level, and years of studying English, and it also asked students to identify themselves regarding their preferred styles of learning, i.e., types of learners.

Table 2 Background information on students 2

| Gender	Age	Major	Years of studying English	English proficiency level	Types of Learners
Male: 30 Female: 40	19-28	Medicine: 50 Nursing: 3 Software Engineering: 2 Business: 1 Law:1 Marketing:1 Pharmacy:3 Dentistry:3 Bio-medical Engineering:1 Unidentified majors: 5	3 years to more than 10 years	Pre-intermediate: 11 Intermediate: 24 Post-Intermediate: 14 Advanced: 10 Native-like fluency: 10	Auditory/Visual/ Kinesthetic: 60 Visual:10

As it can be seen from this table, seventy students participated in this survey. Forty of the participants were females, thirty were males. The students have different majors, i.e. 50 students have a major in medicine, 3 students have a major in nursing, 3 students have a major in pharmacy, 3 students have a major in dentistry, 1 student has a major in bio-medical engineering, 5 students have non- medical majors, i.e. 2 students have a major in software engineering, 1 student has a major in business, 1 student has a major in law, and 1 student has a major in marketing, and 5 students have an undefined major. The students with a major in other disciplines were asked to participate in the survey to determine which strategies they as ESP students use for vocabulary acquisition and present their unbiased opinion on vocabulary acquisition strategies for medicine as part of the field of English for specific purposes. The students studied ESL from 3 years to more than 10 years. Based on this, it can be stated that the proficiency levels of the students varied. There were 11 students at the pre-intermediate level, 25 students at the intermediate level, 14 students were at post-intermediate level, 10 students were at the advanced level, and 10 students had native-like fluency. This shows that the ESP students have the necessary basic ESL skills to be able to participate in the ESP course.

Question 6 asked the students to identify themselves as types of learners. At this question, 86 % of the students said that they belong to all three categories, visual, auditory, and kinesthetic, and 14 % of students mentioned to be only visual learners. It can be seen from this division of the learning styles that the majority of students employ various learning methods, techniques and aids to gain knowledge.

The 7[th]question of the survey was "For you, is it easy or difficult to learn new ESP vocabulary?" Only 7 % of the students said that it was difficult for them to learn new

ESP vocabulary, while 93 % of the students said that it was neither easy nor difficult to learn new ESP vocabulary.

Question 8 of the survey asked the students, "Which strategies do YOU use for vocabulary acquisition?" The students were permitted to check more than one option. The answers are presented in the following bar graph:
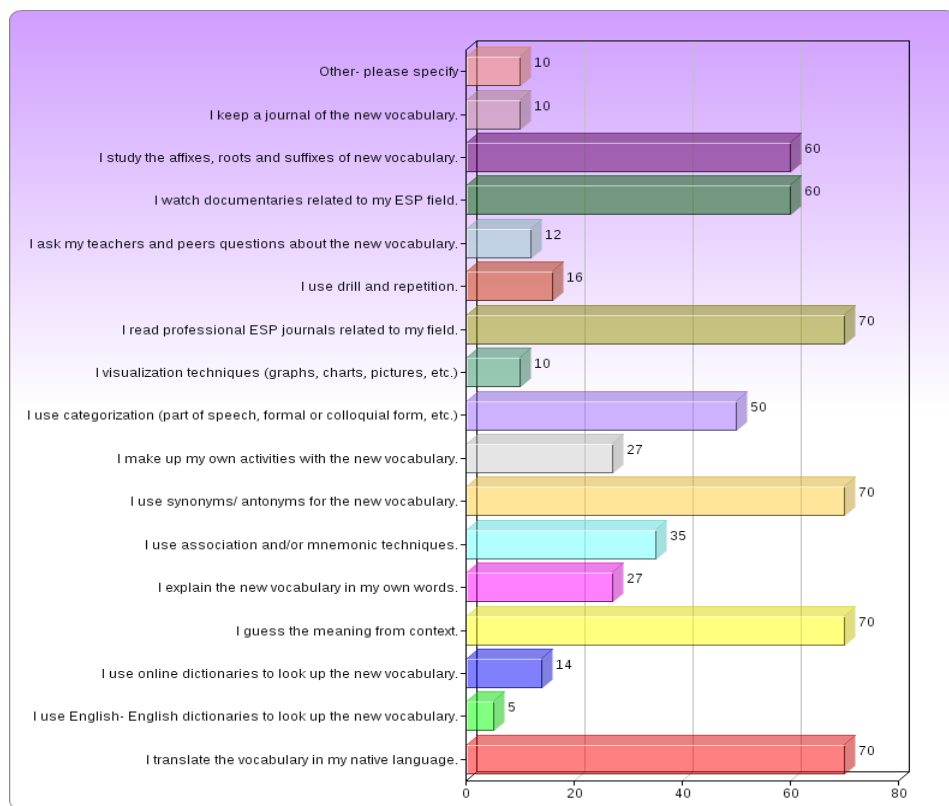
Bar Graph 1 Vocabulary acquisition strategies

From the above bar graph, it can be concluded that 100% of the students use the following strategies: translation, guessing meaning from context, providing synonyms and/or antonyms, and reading professional journals related to their ESP, 86% of the participants study the roots, affixes, and suffixes of the new vocabulary and watch documentaries related to their ESP field. Then, 71% of the students use the strategy categorization, i.e., they study the parts of speech, the colloquial or formal expressions, and so on. Fifty percent of the participants explain the new vocabulary in their own words, which implies that they understand the new vocabulary better if they provide a definition for the new vocabulary on their own. There were 39 % of the students who make their own activities using the new vocabulary and use association and/or mnemonic devices, 23 % of the students use drill and repletion, and 20% of the students use online dictionaries to look up the new vocabulary, 17% of the students say that they ask their peers or teachers to explain the new vocabulary, 14% of the students use the

following specific strategies: visualization techniques to study the new ESP vocabulary creating charts and graphs, keep a journal using the new vocabulary, and enjoy crossword puzzles and word searches of the new vocabulary. Only 7 % of the students use English-English dictionaries as a vocabulary strategy to learn new ESP vocabulary.

Question 9 asked the participants: "How often do YOU use the following vocabulary acquisition strategies? Check the appropriate number for each strategy." The participants were asked to express how frequently they use specific vocabulary acquisition strategies. They were given the following options:

7- I always use this strategy
8- I often use this strategy
9- I use this strategy sometimes
10- I rarely use this strategy
11- I never use this strategy
12- I am not familiar with this strategy

The answers are presented in the following table:

Table 3 Frequency of using vocabulary acquisition strategies medicine by ESP students of medicine

| Vocabulary Acquisition Strategy	I always use this strategy	I often use this strategy	I use this strategy sometimes	I rarely use this strategy	I never use this strategy	I am not familiar with this strategy
I translate the vocabulary in my own language.	70=100%	0	0	0	0	0
I use English- English dictionaries to look up the new vocabulary	5	10	11	44	0	0
I use online dictionaries to look up the new vocabulary	14	12	18	26		0
I guess the meaning from context	70	0	0	0	0	0
I explain the new vocabulary in my own words	10	10	30	20	0	0
I use association and/or mnemonic techniques	60	10	0	0	0	0
I use synonyms/ antonyms for the new vocabulary	70	0	0	0	0	0
I make up my own activities with the new vocabulary	5	15	30	20	0	0

The first strategy, "I translate the vocabulary in my own language," is used by 100% of the participants, always. The second strategy, "I use English - English dictionaries to

look up the new vocabulary," is used always by 7 % of the participants, often by 14% of participants, sometimes by 16% of the participants, and rarely by 63% of the participants. The third strategy, "I use online dictionaries to look up the new vocabulary," is used always by 20% of the participants, often by 17% of the participants, sometimes by 26% of the participants, and rarely by 37% of the participants. The fourth strategy, "guessing the meaning from context," is used by 100% of the participants always. The fifth strategy, "explaining the new vocabulary in my own words," is used always by 14% of the participants, often by 14% of the participants, sometimes by 43% of the participants, and rarely by 29 % of the participants.

The sixth strategy, "using association and/or mnemonic techniques," is used always by 86% of the participants and often by 14% of the participants. The seventh strategy, "using synonyms/ antonyms for the new vocabulary," is used by 100% of the participants always. The eighth strategy, "making up my own activities with the new vocabulary," is used always by 7% of the participants, often by 21% of the participants, sometimes by 43% of the participants, and rarely by 29% of the participants. The ninth strategy, "using categorization (part of speech, formal or colloquial form, etc.)" is used always by 25% of the participants, often by 39% of the participants, and sometimes by 36% of participants. The tenth strategy, "using visualization techniques (graphs, charts, pictures, etc.)," is used always by 14% of the participants, often by 56% of the participants, sometimes by 23% of the participants, and rarely by 30% participants. The eleventh strategy, "reading professional ESP journals related to my field," is used by 100% of the participants always. The twelfth strategy, "using drill and repetition," is used always by 7% of the participants, often by 21% of participants, sometimes by 36% of the participants, and rarely by 57% of the participants.

The thirteenth strategy, "asking my teachers and peers questions about the new vocabulary," is used always by 7% of the participants, often by 21% of the participants, sometimes by 34% of the participants, and rarely by 57% of participants. The fourteenth strategy, "watching documentaries related to my ESP field," is used always by 86% of the participants and often by 14% of the participants. The fifteenth strategy, "studying the affixes, roots and suffixes of new vocabulary," is used always by 86% of the participants and often by 14 % of the participants. And the last sixteenth strategy, "keeping a journal of the new vocabulary," is used always by 7% of the participants, often by 19% of participants, sometimes by 17% of participants, and rarely by 57% of the participants. The 10th question asked the students: "After you use the vocabulary acquisition strategies you have mentioned, how prepared are you to use the new vocabulary?" Sixty five percent of the participants answered: "I am prepared enough to use the new vocabulary." Thirty five percent said, "I am not prepared well to use the new vocabulary." This shows that the majority of the students are able to apply the new vocabulary but 35%, although a smaller percentage, still suggests that additional instruction is needed and the strategies these 35% use are not very effective.

Question 11 asked the participants the following: "In your opinion, which strategies are the MOST effective for the acquisition of ESP medical vocabulary?" The answers are given in the following Figure:
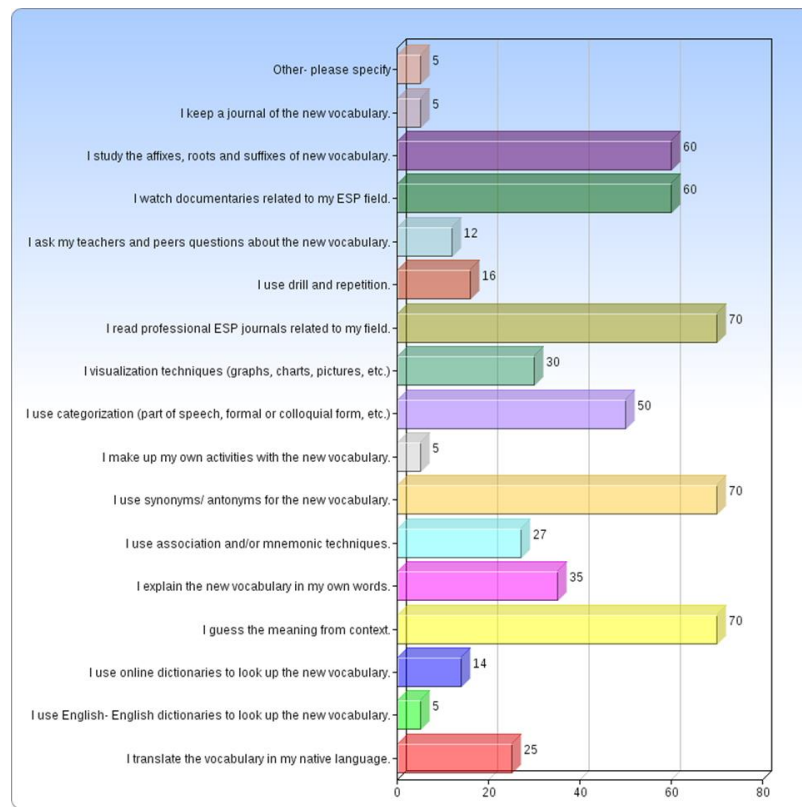
Bar Graph 2 Most effective strategies for the acquisition of ESP medical vocabulary

From the above bar graph, the following can be seen: guessing meaning from context, using synonyms and antonyms, and reading professional ESP journals related to the ESP field are the most effective strategies for vocabulary acquisition for ESP for medicine. These two strategies were chosen by 100% of the participants. Then follow: watching documentaries related to specific ESP fields and studying the affixes, roots and suffixes of the new vocabulary chosen by 86% of the participants. Seventy one percent of the participants think that using categorization is an effective vocabulary strategy. Fifty percent of the students believe that explaining the new vocabulary in their own words is an effective strategy. Thirty nine percent of the students consider using association and/or mnemonic devices to be an effective strategy for the acquisition of medical vocabulary. The strategy translation into the native language was chosen by 36% of the participants. 23% of the participants selected drill and repetition, 20% of the participants mention using online dictionaries, and 17% of the participants suggest asking the teacher or peers to explain the new vocabulary as an effective strategy. Only 7% of the students believe that using English-English dictionaries and keeping a journal of the new vocabulary can be used as effective strategies for vocabulary acquisition for medical terminology.

And finally, 7% of the students suggest that students must put all the strategies into practice, i.e., try and use all of them to see what really works for them and their preferred

styles of learning because some vocabulary acquisition strategies might work in specific medical scenarios. Still, those same strategies might not work in different ones, and so on. Thus, ESP medical students should combine the strategies to suit their needs.

Question 12 asked the participants the following: "In your opinion, which strategies are the LEAST effective for the acquisition of ESP medical vocabulary?" Only three strategies were selected as least effective for acquiring ESP vocabulary. Complete 100% of the students mentioned that creating their own activities with the new vocabulary and providing their own definitions are the least effective vocabulary acquisition strategies for ESP for medicine because students often misunderstand the meaning of the vocabulary and provide incorrect explanations and incorrect activities. Fifty seven percent of the students suggested using English-English dictionaries also as the third least effective strategy for the acquisition of medical vocabulary. The other strategies were not mentioned.

The 13th question of the survey asked the participants: "Do you think that vocabulary acquisition strategies for ESP classes should differ from vocabulary acquisition strategies for general ESL classes?" Forty percent of the participants said, "I do not know," 10% said, "maybe," and 50% said, "yes."

Question 14 asked the students to provide additional comments in the form of a free-answer paragraph. Full 100% of students said they took the class because they needed the credit as a pre-requisite for their future studies and/or professions. The 50 students majoring in medicine expressed regret that the course lasted a short time and wished to study longer than 3 months. They also complained that there were too many medical English textbooks and wished to have only one medical textbook that would cover many medical topics and scenarios. The 3 students with a major in nursing also complained that the course did not last long enough and thought that only two nursing textbooks are not enough; more are needed. The 3 students with a major in pharmacy complained that the materials were only designed for medical and nursing students, but they did enjoy the online materials designed for pharmacy students. The 3 students with a major in dentistry gave the same answer as the pharmacy major students, i.e., asked for textbooks covering topics in dentistry but enjoyed the online materials covering dentistry topics and scenarios. The one student majoring in bio-medical engineering expressed sincere appreciation for the course, activities, and materials. The answers of the 5 non-medical major students varied. The 2 students with a major in software engineering expressed gratitude for the class, materials, and activities because they became more familiar with medical terminology, which they need for their software programs. However, the other three students majoring in business, law and marketing took the class because they needed the credit for college, i.e., they needed Academic vocabulary in general and were not particularly interested in the medical topics or the medical vocabulary.

The results from the research instruments show significant conclusions about vocabulary acquisition strategies for ESP for medicine.

Although most of these participants are related to the fields of medicine, their needs are diverse since their professions are diverse. They enjoy vocabulary activities which suit their learning styles. Roleplay, however, seems to be the most liked vocabulary activity and learning strategy. The students are fond of textbooks which provide an abundance of activities, as these ESP textbooks thus enable students to use different types of vocabulary acquisition strategies. The books used during this course proved right on target for medical students, even more than necessary, because there were so many, and they provided students with so many options. However, the students with a major in

nursing expressed sincere wishes for more materials related to nursing. The same request was expressed by those students majoring in dentistry and pharmacy. Students' recommendations for ESP teachers are to be flexible to students' needs. Obviously, the books employed all three types of strategies, cognitive, metacognitive, and social, and students were able to choose amongst these strategies to select the ones which suit their preferred learning styles. It is only normal that not all the students are going to be 100% pleased with the textbooks and materials, and there are going to be activities that they will love and enjoy completing and some that they will not enjoy so much.

In terms of the results obtained from the second instrument, several points are most certainly evident. The option "I never use this strategy" was not selected at all. This means that from all the given strategies, there are no strategies which students never use, i.e. students use all the given strategies, some strategies more than others, but they use them all. Also, the option "I am not familiar with this strategy" was not selected which implies that students are familiar with all the presented strategies. And last but not least, the strategies of translating into the native language, guessing meaning from context, reading professional journals, watching documentaries related to specific ESP fields, studying roots, affixes and suffixes, as well as providing synonyms and antonyms and using associations and mnemonic devices are among the most commonly used vocabulary acquisition strategies for ESP for medicine. In the previous questionnaire, the strategy of guessing meaning from context is the one that students do not like the most; 57% said that they did not like it, but it is the most used strategy because it proves effective. Students are not fond of many learning tools and strategies, but if not always, they often employ these tools and strategies because they tend to be extremely useful and beneficial.

5. FINDINGS

The conclusions of this study and the findings from other research studies on vocabulary acquisition strategies for ESP for medicine give the whole picture of this puzzle of vocabulary acquisition for ESP for medicine.

The answer to question one of this research study, *"What are the vocabulary acquisition strategies for ESP for medicine from ESP medical textbooks?"* is found in the first questionnaire. The participants clearly indicate that the ESP medical textbooks employ an abundance of activities for vocabulary practice, activities which belong to all three types of strategies: metacognitive, cognitive, and social. Students most definitely prefer some strategies over others, i.e., prefer those strategies that suit their needs for a given situation or vocabulary activity and their preferred styles of learning. Among the strategies employed by the ESP textbooks, the following are most commonly used:
- The students working individually or in a group to deduce meaning from the context,
- Providing a summary, synonym, or antonym for specific terms,
- Studying the prefixes, roots, and suffixes of medical vocabulary,
- Cooperating with classmates for role play and projects,
- Using mnemonic devices for some difficult-to-memorize illnesses and medications,
- Watching documentaries related to their specific ESP fields, and
- Using visual presentations for medical terminology.

The ESP medical textbooks are innovative and enjoyable for ESP medical students and enable students to be more active during classwork and homework.

The answers to question two of this research study: *"Which acquisition strategies are employed by students for effective and efficient ESP vocabulary retention and usage"* are found from all instruments. The results showed the following strategies to be most commonly used:

- Guessing meaning from context,
- Translating into the students' native language,
- Providing synonyms and antonyms for medical terminology,
- Reading professional journals related to their specific ESP fields, in this case, medical fields,
- Watching professional documentaries related to their specific ESP medical fields because students could hear the pronunciation of specific vocabulary and get a visual representation, which suited the visual learners the best. As mentioned earlier, 57% of the participants were not fond of the strategy guessing meaning from context. However, even though it is a strategy which gives students some challenges, students often make mistakes while using it, this strategy is the most commonly used strategy simply because it proves to be effective and efficient for the acquisition of ESP medical vocabulary and ESL vocabulary in general.

The other research studies also show that translating, i.e., using bilingual dictionaries, is a commonly used vocabulary acquisition strategy for ESP medical students because translation is the comfort zone for most ESL learners, and context plays an important role in ESP.

In regard to question three of the present research: *"How can ESP professionals develop new teaching materials for ESP vocabulary for medical students?"* students have the following recommendations:

- ESP medical textbooks should be designed for specific ESP medical fields because specific fields use specific terms. Some terminology is more general, but some is more specific,
- Internet components of ESP medical textbooks are highly motivating and enjoyable for students. Thus, new ESP textbooks should strive to incorporate as many online activities and projects as possible
- Often, too many ESP textbooks can be overwhelming and confusing. A more concise textbook, incorporating more topics is more desired, instead of many books and materials, which present a great challenge when it comes to finding specific information,
- Accompanying audio and visual materials of real medical situations is a bid request and recommendation for future ESP medical textbooks.
- A final project as an internship in a hospital or walking clinic will make the classes, and thus the ESL program, more interesting and capture the attention of more students.
- Special emphasis is put on the development of textbooks for students of dentistry and pharmacy, with all the characteristics mentioned above, since they feel neglected and left out, and they shouldn't because they play an essential part in the natural sciences.
- New textbooks with a plethora of activities for all types of learners, which will give them enough theory to be able to put into practice their skills to get into graduate schools and eventually get the "dream job" and
- Creating new ESP medical textbooks, which will entail materials for more than three months because more than a three-month-long course is needed to acquire medical vocabulary.

In conclusion of the findings, it can be said that the two research hypotheses make complete and utter sense. Students are motivated to learn new ESP medical vocabulary in their ESP classes because they will use the newly acquired vocabulary in their future medical profession. Students constantly repeated that they are taking the course because they need it and want it for their future studies and their future careers. ESP students retain and use new ESP medical vocabulary more efficiently once they acquire this ESP medical vocabulary from a medical context. Students complained about the challenging learning strategy and did not like it. However, they selected it as the most commonly used strategy simply because what is a word without its context? It needs context to obtain the specific meaning.

6. LIMITATIONS AND RECOMMENDATIONS

6.1. Limitations

It is imperative to mention three limitations of this study. The first limitation of this study is the field of medicine itself. The field of medicine has many divisions, and in each division, the professionals need and use specific vocabulary. From the findings, it can be stated that medical vocabulary has Latin or Greek origin. However, each field has its own specific terms and expressions, which, if used inappropriately, might sound silly and confusing. For example, surgeons use the term amputation, while dentists say extraction. If we hear professionals say tooth amputation or foot extraction, it will sound ridiculous. It will be less confusing if medical professionals use the appropriate jargon for their professions. Thus, for future studies, focusing on a specific branch of medicine and vocabulary acquisition strategies for that particular branch might be more accessible, less confusing, and more profound instead of an overview of ESP strategies for vocabulary acquisition for medicine in general.

The second limitation is related to the participants. The participants were all international students who were attending a university preparation program in the US to pursue their education at colleges and universities in the US or Canada. They had to attend these university preparation programs because international students did not have as many of the college pre-requirements as their peers from the states or Canada. Thus, they had to take Academic Vocabulary courses. Among these courses was the course Academic ESP Vocabulary for Medicine. There were students from many fields of medicine participating in the course. It would have been much easier on the students, the teachers, and the program in general if the students were in groups and subgroups who had already chosen their majors and focused on the vocabulary for their specific fields. In addition, even if the students had chosen their majors, the program they participated in was a general university preparation program, unlike a specific one that would have concentrated on academic vocabulary specific for their prospective fields. The pharmacy and dentistry students complained that the ESP course was designed specifically for medical students.

The third limitation is also related to participants. Even though the proficiency level of the participants seemed to be satisfactory, the students participated in the research electronically because most of them had to leave immediately after the course had ended and had to prepare for their future study and work endeavors. Technology can be and is advanced and convenient. However, it can be very dysfunctional and cause specific problems due to connection. Thus, students might have to retake a questionnaire if the

answers are not submitted, and often going over the questions for the second or third time; students might be tempted and change their initial responses.

6.2. Recommendations for pedagogy

As can be seen from the results, students need but also want to learn medical vocabulary. For instructors, it is a blessing to have students to want to study vocabulary. Curriculum developers must design materials which will foster students' learning and comprehension. The more interactive the materials are, the more involved the students will become.

One suggestion students mentioned was creating one textbook instead of too many, focusing on specific topics instead of general medical topics, and focusing on pronunciation. These suggestions lead to needs analysis. Needs Analysis is a crucial element in the design of ESP materials and ESP courses because it is the building block. Analyzing what the students want and need is the first step of curriculum design. The ESP materials are parts of a puzzle that must be put together to design the perfect ESP textbooks for medicine or any other ESP field. According to Badre (2005), needs analysis is essential because:

- It helps education professionals tailor the curriculum, assessment, and teacher training only to the students' needs and wants, and
- It entails the KWL technique, what the students know, what they want to learn, and what they have learnt after the course to prevent unnecessary repetition and overlapping of ideas and concepts.

The students of nursing and pharmacy requested ESP textbooks to cover topics for nursing and pharmacy. Such textbooks do exist. However, needs analysis of the students of a specific program will give the instructors a precise picture of what these students need and want and thus serve them, accordingly, using the appropriate ESP textbooks.

The results showed that students use a combination of activities and thus learning strategies to acquire ESP vocabulary for medicine. Tailoring the already existing vocabulary strategies according to the students' needs is a core element of ESP. Teachers' training must be tailored accordingly so that teachers are equipped with the methodology to foster students' vocabulary acquisition and employ these existing strategies. Finally, Internet-assisted vocabulary acquisition is a very likeable element of ESP medical textbooks. Thus, it should be a very dominant part of ESP materials for medicine and other ESP fields as well. Pronunciation activities can be created using specific Internet tools, which will make these activities even more enjoyable.

REFERENCES

Akbari, Z., & Tahririan M. H. (2009). Vocabulary Learning Strategies in an ESP Context: The Case of Para-medical English in Iran. Asian EFL Journal, 11(1). Retrieved from http://www.asian-efl-journal.com/March_09_za.php

Badre, A. (2005). Needs Analysis: A Valuable Tool for Designing and Maintaining Effective ESP curriculum. Retrieved from http://www.slideshare.net/abdeslambadre/needs-analysis-a-valuable-tool-for-designing-and-maintaining-effective-esp-curriculum-by-abdeslam-badre

Carrasco-Flores, J. and Alcaraz-Mármol, G. (2020). Exploring ESP textbooks for commers and medicine: An analysis of skills and types of instruction. The Journal of teaching English for Specific Purposes and Academic Purposes, 8 (3), 265−281. https://doi.org/10.22190/JTESAP2003265C

Chia, H.U., & Johnson, R., & Chia, H.L., & Olive, F. (1999). English for College Students in Taiwan: a Study of Perceptions of English Needs in a Medical Context. English For Specific Purposes, 18(2), 107-119. Retrieved from http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6VDM-3VF1H1H-1&_user=10&_coverDate=06%2F30%2F1999&_rdoc=1&_fmt=high&_orig=search&_sort=d&_docanchor=&view=c&_searchStrId=1350878680&_rerunOrigin=scholar.google&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=b8e0f4626207d2a5a43b7ce6e77e920a

Coxhead, A. (2015) Vocabulary and ESP. PALTRIDGE, Brian – STARFIELD, Sue (eds.). The Handbook of English for Specific Purposes, Malden: Blackwell Publishing, ISBN 9780470655320, 115-132.

Civilkienė, D., & Daraškaitė, D., & Lauruškienė, R., & Toropovienė, S. (2009). The role of text-based activities in teaching ESP students. Retrieved from http://dukonference.lv/raksti_pdf/Civilkiene+.pdf

Dudley-Evans, T., & St. John, M. Jo., & Swan, M. (1998). Developments in English for Specific Purposes: A Multi- Disciplinary Approach. Cambridge: Cambridge University Press.

Dudley-Evans, T. & St.John, M. (2012) Developments in English for Specific Purposes: A multidisciplinary approach, Cambridge: Cambridge University Press.

Gavrilyuk, O., Markovina, I. and McFarland, J. (2019). Internationalisation of advanced training for teachers of Medical English. The Journal of teaching English for Specific Purposes and Academic Purposes, 7 (3), 349-357. https://doi.org/10.22190/JTESAP1903349G

Hull, M. (2004) Changing the Paradigm for Medical English Language Teaching. Retrieved from http://www.usingenglish.com/articles/changing-paradigm-for-medical-english-language-teaching.html

Hutchinson, T., & Waters A. (1978) English for specific purposes: a learning-centred approach. Cambridge: Cambridge University Press.

Jordan, L.L.,(1997) English for Academic Purposes: A Guide and research book for teachers. Cambridge: Cambridge University Press.

Lorenzo, F. (2005). Teaching English for Specific Purposes (ESP). Retrieved from http://www.usingenglish.com/teachers/articles/teaching-english-for-specific-purposes-esp.html

Levenston, E. A. (1979). Second language vocabulary acquisition: issues and problems. Interlanguage Studies Bulletin 4(2).

Mazdayasna, G., & Tahririan, M.H. (2008). Developing a profile of the ESP needs of Iranian students: The case of students of nursing and midwifery. Journal of English for Academic Purposes, 7(4), 277-289.

Nation, P., & Carter, R. (eds.) (1989).Vocabulary Acquisition. Retrieved from http://www.aila.info/download/publications/review/AILA06.pdf

Orr, T. (ed.) (2002). English for specific purposes. TESOL Inc. p.1-3

Razmjoo, S.A. & Raissi, R. (2010). Evaluation of SAMT ESP Textbooks for the Students of Medical Sciences. The Asian ESP online journal, 6(2) retrieved from http://www.asian-esp-journal.com/October-2010.pdf

Robinson, P. (1991) ESP Today: A Practitioners Guide. Hemel Hempstead: Prentice Hall.

Strevens, P. (1977). Special purpose language learning: A perspective. Language Teaching and Linguistic Abstracts, 10, 145-163.

Viel, J.C. (2002). The Vocabulary of English for Scientific and Technological Occupational Purposes. English for Specific Purposes World, Online Journal for Teachers, 1(1) Retrieved from http://www.esp-world.info/Articles_1/issue_1.html.

Yang, M. N.(2005). Nursing Pre-professionals' Medical Terminology Learning Strategies. The Asian ESP online journal, 6(2) retrieved from http://www.asian-esp-journal.com/September_2005_mny.php

Schmitt, N. and McCarthy, M. (2011) Vocabulary: Description, Acquisition and Pedagogy, Cambridge: Cambridge University Press. ISBN 978-0-521-58551-4

APPENDIX 1

Students' opinions on a medical textbook
1-5 Background Information

6.   What type of activities do you like?
  a. Fill in the blanks
  b. Multiple choice
  c. Matching
  d. Providing synonyms and/or antonyms
  e. Creating my own activities with the new vocabulary
  f. Role play
  g. All of the above
  Other- please specify_____

7.   Why are you taking the Academic Vocabulary (ESP for medicine) class?
  a. I need it for my career
  b. I want to for my career
  c. I need it for my future education
  d. I want to for my future education
  e. Other- please specify_____

8. What types of activities did the ESP medical textbooks provide?
  a. Role play activities
  b. Fill in the blanks
  c. Matching
  d. Providing your own definition
  e. Video presentations of scenarios
  f. All of the above
  g. Other – please specify _____

9.   What did you like about the ESP medical textbooks?
  a. Role play activities
  b. Fill in the blank
  c. Matching
  d. Providing your own definition
  e. All of the above
  f. None
  g. Other – please specify_____

10. What didn't you like about the ESP medical textbooks?
    Please, specify _____

11. I used the textbooks activities for
    a. Class work
    b. Homework
    c. Both
    d. Neither

12. Do you think the ESP medical textbooks can be improved?
    a. Yes   b. No   c.Maybe

13. Were you able to understand the new medical vocabulary from the textbooks' activities?
    a. I was able to understand
    b. I was able to understand enough
    c. I was able to understand only a little
    d. I was not able to understand at all
    e. Other- please specify_____

14. Did the textbook come with additional study materials?
    a.Yes   b.No   c.Other- please specify

15. In your opinion, what type of additional materials should ESP medical textbooks include
    for easer vocabulary acquisition?
    a. Role play scenarios
    b. Flashcards
    c. Audio and video recordings of actual medical situations
    d. Projects
    e. All of the above
    f. Other- please specify_____

16. Based on the textbooks' activities, what did you learn about ESP medical vocabulary?
    a. Medical vocabulary can be used in everyday language
    b. Medical vocabulary is difficult to understand
    c. The context is extremely important for medical vocabulary
    d. I need additional activities to comfortably use medical vocabulary
    e. All of the above
    f. Other – please specify

17. Were the ESP textbooks' units from one field of medicine or from different fields?
    a. The units covered different fields of medicine.
    b. The units covered one field of medicine, but specific topics related to that field.
    c. I do not know
    d. Other- Please specify

18. ESP textbooks for medical students should be designed for specific fields of medicine.
    a. Yes   b. No

19. In your opinion, how should ESP medical textbooks differ from ESL textbooks?
    a. The ESP textbooks should have role play activities based on scenarios for the specific
       medical field
    b. The ESP textbooks should concentrate on specific skills, based on what the ESP
       students need and want

c. The ESP textbooks should have activities based on visual and auditory aids.

d. All of the above

e. Other- please specify

20. Was your ESL teacher prepared to teach the ESP course and give appropriate explanations when necessary?

a. Yes, my teacher had the necessary teaching skills to teach the class.

b. I think the teacher needed some additional training.

c. No, my teacher had a great difficulty teaching the material.

d. I do not know

e. Other- please specify

21. Would you recommend these ESP medical textbooks to future students?

a. Yes, I would.

b. No, I would not recommend these ESP books to future students.

c. Maybe, with some changes to the activities.

d. Other- please specify.

22. Did the ESP textbook provide all the materials and info you needed for the acquisition of the new vocabulary or you needed additional materials?

a. The ESP textbooks' materials were enough. I did not need additional materials.

b. The ESP textbooks' materials were not enough. I needed additional materials.

c. The ESP textbooks' materials were enough, but were very confusing, so I needed additional materials.

d. The ESP textbooks' materials were not enough, and very confusing, so I needed additional materials

e. I do not know.

f. Other-please specify

23. In your opinion, were the ESP medical textbooks used in your class, interesting and motivating for ESP medicine?

a. Yes   b. No   c. Other- please specify

24. Of all the ESP medical textbooks used in class, which one did you enjoy the most? (you may choose more than one)

a. Cambridge English for Nursing 1 and 2

b. English in Medicine

c. Professional English in Use – Medicine

d. Check your English Vocabulary for Medicine- Workbook

e. Oxford English for Careers: Medicine 1 and 2

f. Oxford English for Careers: Nursing 1 and 2

g. All of the above

f. Neither

25. Please specify why you chose the book/books in question 24.

APPENDIX 2
STUDENTS' QUESTIONNAIRE ON VOCABULARY ACQUISITION STRATEGIES

1.	How old are you?
2.	What is your gender?
3.	How long have you been studying English as a second language?
4.	What is your major?
5.	*In your opinion*, what is your English proficiency level? a. Beginner b. Pre-intermediate c. Intermediate d. Post-intermediate e. Advanced f. Native-like fluency g. I do not know
6.	What type of learner are you? a. I am an auditory learner - I study by listening b. I am a visual learner - I study using visual aids c. I am a kinesthetic learner - I study by being able to touch and feel d. All of the above e. I do not know f. Other- please specify
7.	For you, is it easy or difficult to learn new ESP vocabulary? a. Extremely easy b. Easy c. Difficult d. Extremely difficult e. Neutral- neither easy nor difficult
8.	Which strategies do YOU use for vocabulary acquisition? (you may check more than one) 1. I translate the vocabulary in my own language. 2. I use English- English dictionaries to look up the new vocabulary. 3. I use online dictionaries to look up the new vocabulary. 4. I guess the meaning from context. 5. I explain the new vocabulary in my own words. 6. I use association and/or mnemonic techniques. 7. I use synonyms/ antonyms for the new vocabulary. 8. I make up my own activities with the new vocabulary. 9. I use categorization (part of speech, formal or colloquial form, etc.) 10. I visualization techniques (graphs, charts, pictures, etc.) 11. I read professional ESP journals related to my field. 12. I use drill and repetition. 13. I ask my teachers and peers questions about the new vocabulary. 14. I watch documentaries related to my ESP field. 15. I study the affixes, roots and suffixes of new vocabulary. 16. I keep a journal of the new vocabulary. 17. Other- please specify

9.	Check the appropriate number for each strategy.
	1. I always use this strategy
	2. I often use this strategy
	3. I use this strategy sometimes
	4. I rarely use this strategy
	5. I never use this strategy
	6. I am not familiar with this strategy

10.	How often do YOU use the following vocabulary acquisition strategies?

1. I translate the vocabulary in my own language.	1 2 3 4 5 6
2. I use English - English dictionary to look up the new vocabulary.	1 2 3 4 5 6
3. I use online dictionaries to look up the new vocabulary.	1 2 3 4 5 6
4. I guess the meaning from context.	1 2 3 4 5 6
5. I explain the new vocabulary in my own words.	1 2 3 4 5 6
6. I use association and/or mnemonic techniques.	1 2 3 4 5 6
7. I use synonyms/ antonyms for the new vocabulary.	1 2 3 4 5 6
8. I make up my own activities with the new vocabulary.	1 2 3 4 5 6
9. I use categorization (part of speech, formal or colloquial form,)	1 2 3 4 5 6
10. I visualization techniques (graphs, charts, pictures, etc.)	1 2 3 4 5 6
11. I read professional ESP journals related to my field.	1 2 3 4 5 6
12. I use drill and repetition.	1 2 3 4 5 6
13. I ask my teacher and peers questions about the new vocabulary.	1 2 3 4 5 6
14. I watch documentaries related to my ESP field.	1 2 3 4 5 6
15. I study the affixes, roots and suffixes of new vocabulary.	1 2 3 4 5 6
16. I keep a journal of the new vocabulary.	1 2 3 4 5 6
17. Other- please specify	

11.	After you use the vocabulary acquisition strategies you have mentioned, how prepared are you to use the new vocabulary?
	a. I am prepared extremely well to use the vocabulary.
	b. I am prepared enough to use the vocabulary.
	c. I am not prepared well to use the new vocabulary.
	d. I am not prepared at all to use the new vocabulary.
	e. Other- please specify

12.	In your opinion, which strategies are the MOST effective for the acquisition of ESP medical vocabulary? (you may check more than one)
	1. I translate the vocabulary in my native language.
	2. I use English- English dictionaries to look up the new vocabulary.
	3. I use online dictionaries to look up the new vocabulary.
	4. I guess the meaning from context.
	5. I explain the new vocabulary in my own words.
	6. I use association and/or mnemonic techniques.
	7. I use synonyms/ antonyms for the new vocabulary.
	8. I make up my own activities with the new vocabulary.
	9. I use categorization (part of speech, formal or colloquial form, etc.)
	10. I visualization techniques (graphs, charts, pictures, etc.)
	11. I read professional ESP journals related to my field.
	12. I use drill and repetition.
	13. I ask my teachers and peers questions about the new vocabulary.
	14. I watch documentaries related to my ESP field.
	15. I study the affixes, roots and suffixes of new vocabulary.
	16. I keep a journal of the new vocabulary.
	17. Other- please specify

13. In your opinion, which strategies are the LEAST effective for the acquisition of ESP medical vocabulary? (you may check more than one)
    1. Translating the vocabulary in my own language.
    2. Using English- English dictionaries to look up the new vocabulary.
    3. Using online dictionaries to look up the new vocabulary.
    4. Guessing the meaning from context.
    5. Explaining the new vocabulary in my own words.
    6. Using association and/or mnemonic techniques.
    7. Using synonyms/antonyms for the new vocabulary.
    8. Making up my own activities with the new vocabulary.
    9. Using categorization (part of speech, formal or colloquial form, etc.)
    10. Visualizing techniques (graphs, charts, pictures, etc.)
    11. Reading professional ESP journals related to my field.
    12. Using drill and repetition.
    13. Asking my teachers and peers questions about the new vocabulary.
    14. Watching documentaries related to my ESP field.
    15. Studying the affixes, roots and suffixes of new vocabulary.
    16. Keeping a journal of the new vocabulary.
    17. Other- please specify.

14. Do you think that vocabulary acquisition strategies for ESP classes should differ from vocabulary acquisition strategies for general ESL classes?
    a. Yes
    b. No
    c. Maybe
    d. I do not know

15. Do you have any additional comments?