

Investigating Difficulties Facing the College of Engineering Students in Learning Specialized English Vocabulary.

A case Study of College of Engineering, SUST(Sudan University of Science and Technology)

Egbal Abdalla Mohamed(1) and Dr. Abdalla Yassin(2)
College of Languages, Sudan University of Science and Technology.

Abstract :

This study aims at Investigating Difficulties facing students of College of Engineering in learning specialized English terminologies. The study employed the analytical research method, based on a questionnaire for the students of engineering to investigate these difficulties. The study underlined these difficulties and some solutions have been suggested to overcome them.

Key word: EFL, Specialized English Vocabulary ,Engineering Terminologies

ملخص الدراسة :

تهدف هذه الدراسة إلى تقصي الصعوبات التي تواجه طلاب كلية الهندسة في تعلم المفردات المتخصصة. وقد اتبعت الدراسة الطريقة التحليلية، حيث قامت الباحثة بتصميم استبانة للطلاب لتقصي تلك الصعوبات و اقترحت بعض الحلول للتغلب عليها.

Introduction :

English language is taught in all Sudanese Universities as a foreign language. Students of different specializations, learn English as a university requirement for three terms: in the first and the second terms, they learn general English . In the third term, English is taught for specific purposes (ESP) according to the students' specializations (engineering, medical , business , etc.).

The research is only concerned with the difficulties facing the students of engineering at Sudan University of Science and Technology . The outstanding difficulty is that of communication with the teachers in the classroom because of the large numbers. Also, the students have difficulty in communicating with foreigners who are specialized in the same field.

Another difficulty is that the students are not taught according to suitable strategies, and there is lack of motivation to learn such specialized vocabulary. Also, the specialist teaching materials are poor and not carefully and professionally designed.

This study is intended to answer the following question:

To what extent do university students face difficulties in learning specialized English vocabulary?

For the purpose of answering this question, the following hypothesis is proposed:
The students face many difficulties in learning specialized vocabulary.

Objectives of the study:

The goal of this study is to investigate, underline and overcome the difficulties that face the college of Engineering students in learning specialized vocabulary.

Literature review:

According to Penny Ur⁽³⁾ vocabulary is defined as “the words we teach in the foreign language”. He accepted “a new item of vocabulary may be more than a single word, a compound of two or three words and multi-word idioms”. On the other hand, Michael Lewis⁽⁴⁾ states that, vocabulary “may be individual words, or full sentences – institutionalized utterances – that convey for social or pragmatic meaning within a given community”. Coxhead and Nation⁽⁵⁾ categorize vocabulary in ESP into four groups: high frequency words, academic vocabulary, technical vocabulary, and low frequency vocabulary.

Vocabulary is the most comprehensive and most difficult aspect of English for foreign learners to master. They should concentrate first on learning the most frequently used and therefore most important English vocabulary for their practical real life needs⁽⁶⁾. In a particular, specialized English vocabulary presents special difficulty for foreign learners. The difficulties facing engineering students in learning specialized English vocabulary have widely been analyzed. The results of studies focused on Difficulties in learning specialized English vocabulary: Dr. Dipti Gupta ⁽⁷⁾ focuses on the difficulties of teaching and learning Technical English to engineering students in India, especially tenses. He tried to mention the problems faced by teachers of English subject, in teaching students of Engineering and Technology, at the same time the problems faced by students in learning English. He has also mentioned some suggestions and ways to develop all skills related to English Language that might be useful for both-students and teachers.

In their studies on Professional Communication For Nonnative Speakers of English⁽⁸⁾, Thomas N. Huckin and Leslie A. Olsen, state: “Scientists and engineers may be technically brilliant and creative, but unless they can convince co-workers, clients, and supervisors of their worth, their technical skills will be unnoticed, unappreciated, and unused. In a word, if technical people cannot communicate to others what they are doing and why it is important, it is they and their excellent technical skills that will be superfluous. From this perspective, communication skills are not just handy; they are critical tools for success, even survival, in “real world” environments”⁽⁹⁾.

Studies about the difficulties facing ESP teachers and learners in teaching and learning English ESP vocabulary in Heat and Refrigeration Engineering have made varied results. Hanoi ⁽¹⁰⁾, used two questionnaires for both teachers and students in his study. 12

teachers of English and 100 students are chosen for investigation. He found out, students do not make use of a variety of learning strategies in ESP vocabulary learning. Many of them only learn vocabulary by rote learning, and they tend to face great difficulties in associating the meanings of the target words with their form and sound. As a result, they have not achieved satisfactory results in retaining vocabulary yet.

Darren Hsin-hung Lin and Shelley Ching-yu Hsieh(11), studied the Specialized Vocabulary of Modern Patent Language: Semantic Associations in Patent Lexis. Their paper presents an analysis of the language of patents, as a contribution to the field of English for Specific Purposes (ESP). they used statistical approach for compiling patent technical word list for ESP.

Mai Tuyết Nhung(12) studied the difficulties in teaching and learning vocabulary in the textbook “English for Food Production Staff”, she used two tools in her study: a questionnaire for students and an interview for teachers, to investigate some difficulties facing the students of FP (Food Production) in the process of teaching and learning English specialized vocabulary in text book. 50 students who are specialized in food production management at pre-intermediate level, and four teachers were interviewed. A questionnaire for students was administered to get information related to students’ common difficulties in learning English vocabulary for cookery.

From the survey, Mai found that the students did not have proper English vocabulary learning strategies and their background of English in the same class was different. Students also, were not motivated in learning English, they had difficulties in understanding the text and often they met difficulties in pronunciation. Enthused by some previous studies above, and driven by the researcher’s own interest, this research decided to carry out a similar study on the difficulties facing engineering students at Sudanese universities, particularly students of College of Engineering at SUST(Sudan University of Science and Technology). Moreover, similarities exist between those studies and the current study. First, participants in some of the studies above, are university students as same as the participants in this study, second similar tools (interview and questionnaire) are used by both above studied and the current study.

Method of the Study:

Sample of the study:

A questionnaire was designed for the students of the College of Engineering at Sudan University of Science and Technology in Khartoum State. According to general practice in Sudanese Universities English language is taught for only three semesters to the students of engineering, and the focus is on general English that teaches common vocabulary. In the third term ESP is taught.

The questionnaire was for 150 students in the two big departments (Civil and Mechanical Engineering) at the College of Engineering. The students are asked to tick one of five answers (strongly agree, agree, neutral, disagree and strongly disagree).

Validity and Reliability of the Questionnaire:

In order to check the validity of the study questionnaires, the researcher presented the questionnaire to the (5) of the Ph.D. holding referees whom they are specialists in the study field. Some of the referees made some suggestions, and others were agreed that the questionnaire is suitable. For the questionnaire reliability. The study used calculated the reliability coefficient for the measurement, which was used in the questionnaire using (split-half) method. This method based on the principle of dividing the answers of the sample individuals into two parts, i.e. items of the odd numbers e.g. (1, 3, 5, ...) and answers of the even numbers e.g. (2,4,6). The reliability coefficient was calculated according to Spearman-Brown Equation as the following:

$$\text{Reliability Coefficient} = \frac{2 \times r}{1 + r}$$

r = Person correlation coefficient

The researcher calculated the validity statistically using the following equation:

$$\text{Validity} = \sqrt{\text{Reliability}}$$

For calculating the validity and the reliability of the questionnaire from the above equation, the researcher distributed 15 samples of the questionnaire to the respondents. In addition, depending on the answers of the pre-test sample, the above Spearman-Brown equation was used to calculate the reliability coefficient using the split-half method.

Table (2): The statistical reliability and validity of the pre-test sample about the study questionnaire

	Reliability	Validity
Overall	0.76	0.87

The results in the table above, indicate high validity and reliability of the study questionnaire .

Statistical Instruments

In order to satisfy the study objective and to test its hypothesis, the researcher used the following statistical instruments:

1. Graphical figures.
2. Frequency distribution.

Results and discussion:

The analysis of the questionnaire focused on answering a vital question: To what extent do university students face difficulties in learning specialized English vocabulary? To answer this question the researcher computed the frequency distribution and graphical figures.

The statements from 1 to 8 in table No 2 concern with the difficulties which face the students when they learn new terms.

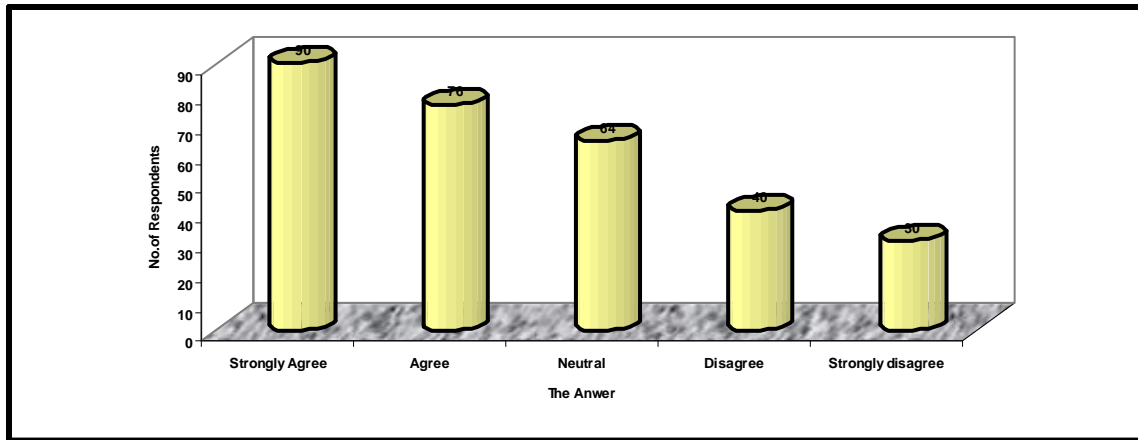
Table (2): Frequency distribution of the statements

No	Statements	Number&Percent				
		Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	Most of my classmates ask the teacher to translate the new words in their first language (Arabic).	90 30.0%	76 25.3%	64 21.3%	40 13.3%	30 10.0%
2	I find difficulty in understanding specialized English texts.	70 23.3%	94 31.3%	54 18.0%	50 16.7%	32 10.7%
3	My class has a large number of students, so that I have a little chance to learn new specialized terms satisfactory.	92 30.7%	92 30.7%	58 19.3%	34 11.3%	24 8.0%
4	It is difficult to ask my teacher about the meaning of new words in front of classmates.	86 28.7%	64 21.3%	34 11.3%	68 22.7%	24 8.0%
5	Materials which I learn encourage me to learn more about new specialized words by myself.	89 29.7%	98 32.7%	46 15.3%	40 13.3%	27 9.0%
6	Specialized English vocabulary I learn is closely related to my field of study.	26 8.7%	66 22.0%	53 17.7%	86 28.7%	69 23.0%
7	It is very difficult for me to recognize the meaning of new word in English .	48 16.0%	86 28.7%	44 14.7%	88 29.3%	34 11.3%
8	The time (two hours per week) devoted to learning English is enough for students to know a lot of new words .	32 10.7%	56 18.7%	26 8.7%	132 44.0%	52 17.3%

After the frequency distribution in the table(2). Now each statement of the domain is considered individually by using ‘Graphical figures’ as follow:

Statement No.(1): Most of my classmates ask the teacher to translate the new words in their first language (Arabic).

Figure No.(1)
The frequency distribution for the respondents’ answers about statement No.(1)



It is clear from the figure above that, 55% of the students prefer to translate news terms in their first language (Arabic) in order to understand them easily, while 23% do not prefer using of their first language when they learn new English words, and 22% of them are neutral.

From these results, the researcher concluded that more than 50% of the students prefer to use their first language as an effective strategy in learning new terms particularly specialized terms as engineering terminology. So, most students translate the technical terms into Arabic language in order to understand their meanings. No doubt that specialized terms are more difficult and many students are uninterested on learning them. So if they know the meaning of new terms in Arabic it is better for them more than using any other strategy.

Statement No.(2): I find difficulty in understanding specialized English texts.

Figure No(2)

The frequency distribution for the respondents' answers about statement No.(2)

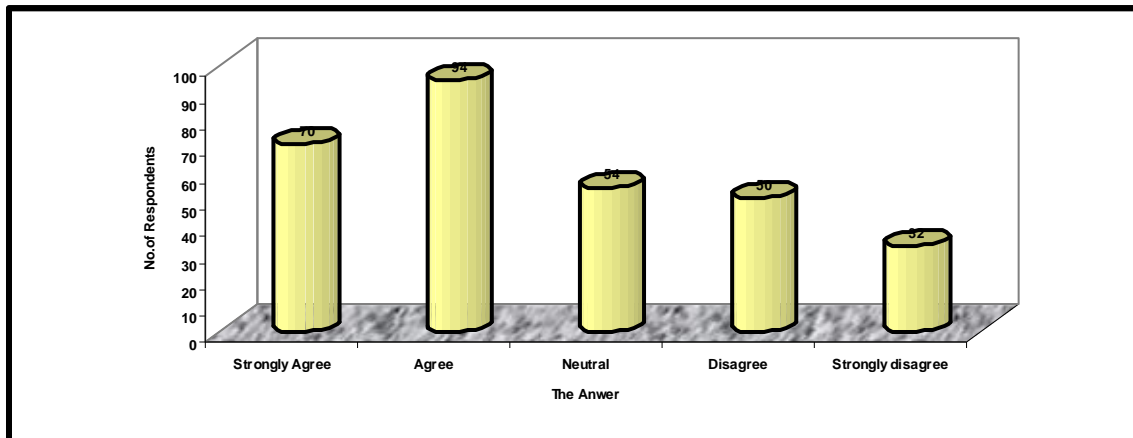
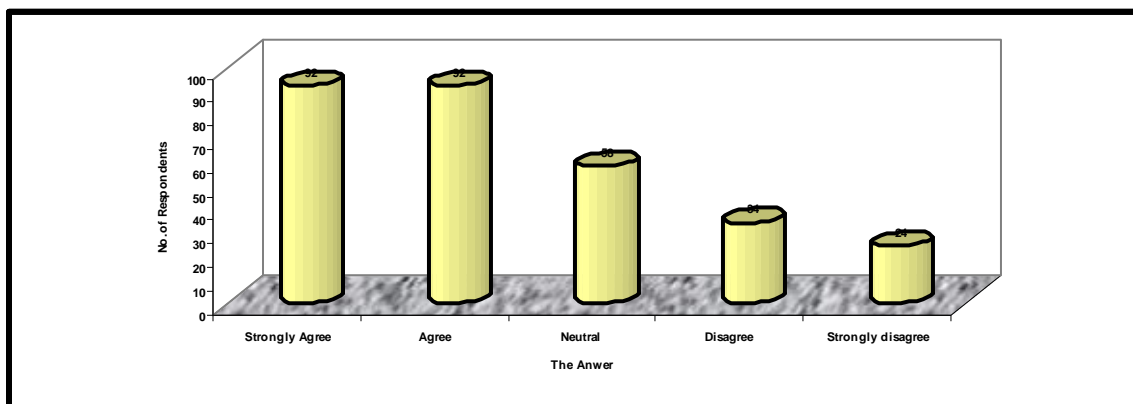


Figure No(2) shows that 54% of the students find difficulty in understanding specialized English texts where as 26% see the opposite and 20 % of them are neutral. As shown as in above results, more than 50 % of the students cannot understand the new words when they learn them through texts. This is because English specialized texts such as English for engineering include many new terms which are very difficult for students of different levels to learn them through texts. Therefore, it is better for them to use a variety means or tools in learning new terms not just focus on specific method such as learning terms through comprehension.

Statement No.(3): My class has a large number of students, so that I have a little chance to learn new specialized terms satisfactory.

Figure No 3.

The frequency distribution for the respondents' answers about statement no.(3)



As displayed in figure No (3), 62% of the students see that they have a little chance to learn new terms, because of their big numbers in the class, whereas 19% of them think

that large class has no effect on the amount of vocabulary which they learn and 19% of them are neutral.

According to these results, the researcher as a lecturer of English, strongly agrees that large class effects on learning new words, specifically engineering terms which need more effort and time from both teachers and students. The class should be small in order to provide students with the better opportunity for achievement. Students who think differently may have already reached high standards in English, and large classes can have no adverse effect on them when they are taught new specialized terms, because of their good command of English.

Statement No.(4): It is difficult to ask my teacher about the meaning of new words in front of my classmate.

Figure No 4
The frequency distribution for the respondents' answers about question statement(4)

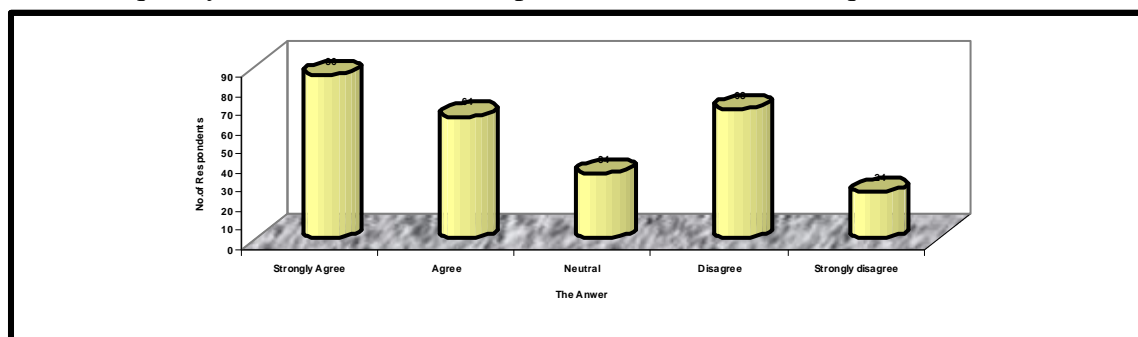


Figure No (4), indicates that 50% of the students cannot ask their teachers about the meaning of new words in front of their classmates while 31% see the opposite and only 11% of them are neutral.

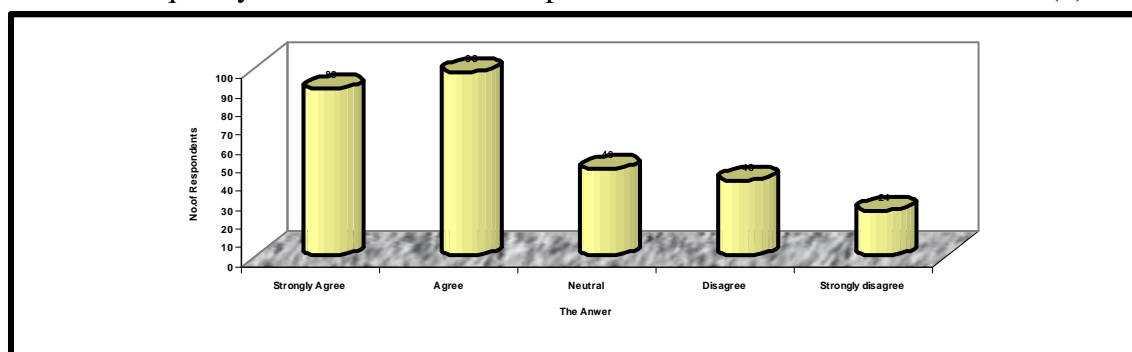
50% present of the students face difficulty in asking their teachers in front of their classmate, is a big problem which makes learning specialized terms bored if there is no interaction from the students in the class.

The researcher thinks that the teachers should encourage students to be more active inside the classroom and to overcome the shyness of some students.

Statement No.(5): Materials which I learn encourage me to learn more about new specialized words by myself.

Figure No5

The frequency distribution for the respondents' answers about statement No.(5)



As displayed in figure No (5), 63% of the students see that the material they learn is suitable and it can help them to learn more words by themselves whereas 22% think that the material they learn focuses on general vocabulary, and only 15% of them are neutral. Materials that encourage students to learn more words by themselves are more effective on learning. Many students feel happy of the material they learn and they think that it is easy for them.

Statement No.(6): Specialized English vocabulary I learn is closely related to my field of study.

Figure No (6)

The frequency distribution for the respondents' answers about statement No.(6)

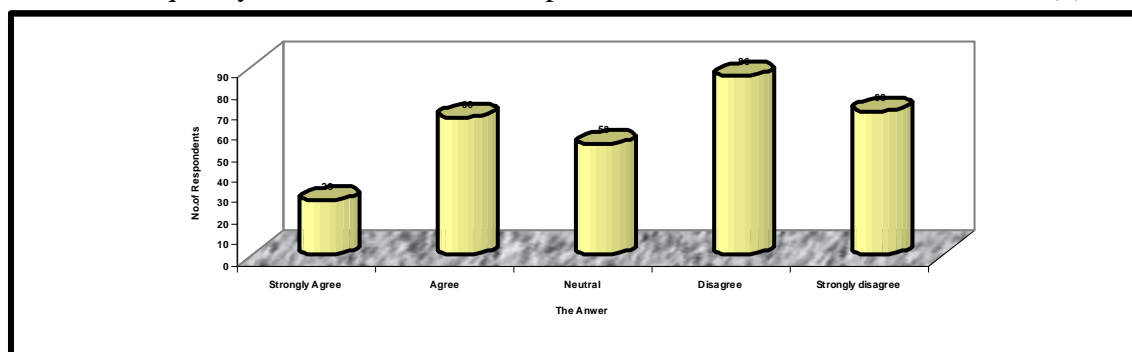
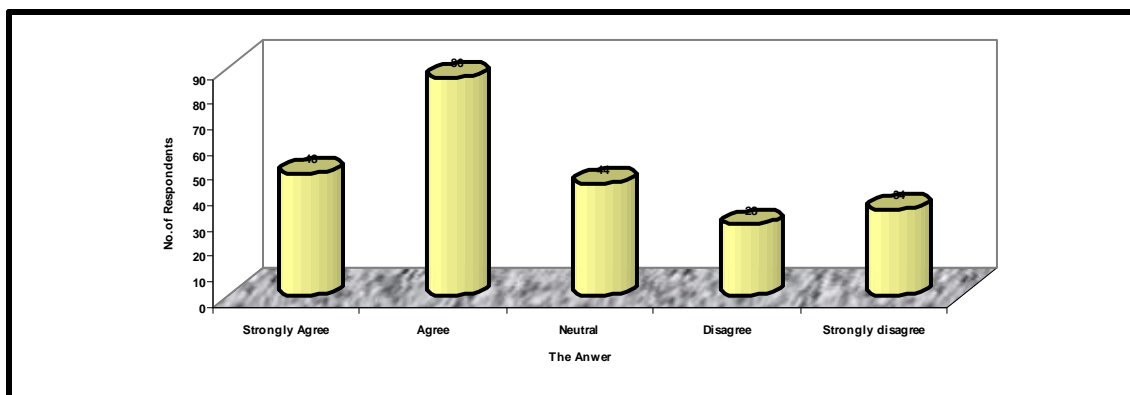


Figure No (6) above, shows that there are 52% of the students see that specialized English vocabulary they learn isn't closely related to their field of study, whereas only 31% of the students are convinced that vocabulary which they learn is closely related to their fields of specialization and 18% of them are neutral. It is clear from these results, that more than half of students are not happy with the material they learn, they see that it is nearer to general vocabulary more than to specialized vocabulary and they need to learn something related to their field. This makes students not interested to learn it.

Statement No.(7): It is very difficult for me to recognize the meaning of new word in English.

Figure No(7)

The frequency distribution for the respondents' answers about statement No.(7)



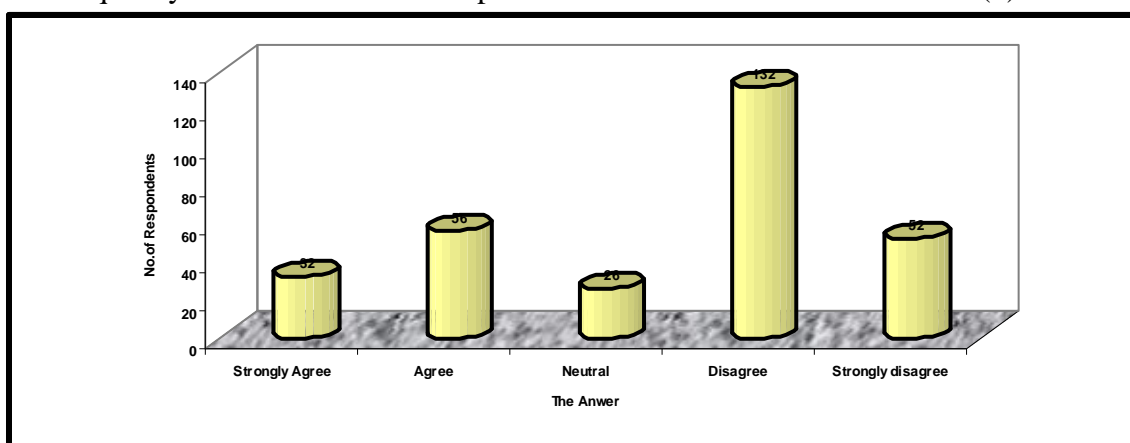
As displayed in the figure No(7) above, 45% of the students find difficulty to remember the meaning of new English words, while 41% see that it is easy for them to remember any new word they learn and only 14% of them are neutral.

It is clear from the results above, that the percentage of the students in positive (agree) and negative (disagree) response is closely equal. This means that there are different levels of students in the same class; individual differences between students (good standard and low standard of students in learning English words). The researcher as a lecturer of English sees that the teacher in the class should use more examples to explain the meaning of new words, these examples should help his/her students to recognize the new terms easily.

Statement No.(8): The time (two hours per week) devoted to learn English is enough for students to know a lot of new words.

Figure No.(8)

The frequency distribution for the respondents' answers about statement No.(8)



As shown as in figure (8) that there are 62% of the students see that the time (two hours per week) devoted to learning English is not enough for them to know a lot of new words while 30% of them see the opposite and only 8.7% are neutral.

The researcher sees that the fewer hours which devoted to learning new terms is not enough and it will be difficult for both teachers and students to achieve the objectives of English course particularly specialized English course which need more time and effort from both of them.

Likewise, Mai(13), aimed to find out some difficulties facing the students of FP(Food Production). She employed analytical research. Her findings showed that most of the students are coping with many difficulties in studying the English in the course book entitled “English for Food Production Staff” mainly due to their limited vocabulary, which covers nearly 70% of exercises in the book, especially in reading and translating exercises. They often learn vocabulary passively through teachers’ explanations and forget words quickly after a short time.

Conclusion:

This study tried to investigate the difficulties facing engineering students in learning specialized English vocabulary. The results of this study showed that there are a lot of difficulties facing these students in learning specialized terms such as large classes, no specific materials regarding their fields of study and not enough time inside class to learn more new terms satisfactorily. Some solutions are suggested by the researcher to overcome these difficulties.

References:

- 1) **Chung, T. M.**(2003). Technical vocabulary in specialized texts. Reading in a Foreign Language, 15(2).
- 2) **Coxhead, A. and Nation, P.** (2001). The specialized vocabulary of English for academic purposes. In J. Flowerdew & M. Peacock (Eds.), Research perspectives on English for Academic Purposes, pp. 252-267. Cambridge: Cambridge University Press(3).
- 3) **Darren Hsin-hung Lin and Shelley Ching-yu Hsieh.** Copyright (2010) The Specialized Vocabulary of Modern Patent Language: Semantic Associations in Patent Lexis(9).
- 4) **Dr. Dipti Gupta**(Assistant Professor)(2013) Teaching English to Engineering Students in India Engineering College, Keetham, Agra, U.P. India.(5)
- 5) **Dudley-Evans, T. and St. John, M.** 1998. Developments in English for specific purposes: A multi-disciplinary approach. Cambridge: Cambridge University Press(4).
- 6) **Hanoi** - 2013 Teaching ESP Vocabulary To Students Majoring In Heat And Refrigeration Engineering: Difficulties And Solutions. At Industry University Of Ho Chi Minh City(8).
- 7) **Huckin, Thomas N. and Olsen, Leslie A.**(1991), “Technical Writing and Professional Communication for Nonnative Speakers of English”,McGraw-Hill International Editions.(7)
- 8) **Journal of Education and Practice**,ISSN 2222-1735 (Paper) ISSN 2222-288X (Online) Vol.4, No.11, 2013(4).
- 9) **Mai Tuyết Nhung**(2011)Difficulties in Teaching and Learning Vocabulary in the Textbook “English for Food Production Staff” for the second year students of pre-

intermediate level at Hanoi Tourism college University of Languages and International Studies M.A Thesis English teaching methodology(10).

- 10) **Michael Lessard-Clouston**.September (2009)Specialized Vocabulary Learning and Use in Theology: Native and Non-native English-speaking Students in a Graduate School (2)
- 11) **Nation, I. S. P.** 2001. Learning vocabulary in another language. Cambridge: Cambridge University Press(1).
- 12) **Widdowson, H. G.** (2011). Teaching Language as Communication. Oxford New York: OUP(7)