ONOMÁZEIN
Journal of linguistics, philology and translation

PONTIFICIA UNIVERSIDAD CATÓLICA DE CHILE
FACULTAD DE LETRAS

Incidental specialised vocabulary acquisition: a case of incidental medical terms acquisition from students' perspective

Elham Abdullah Ghobain
Jazan University
Saudi Arabia

ONOMÁZEIN 53 (September 2021): 84-105
DOI: 10.7764/onomazein.53.05
ISSN: 0718-5758

Elham Abdullah Ghobain: English Language Institute, Jazan University, Saudi Arabia.
| E-mail: eghobain@jazanu.edu.sa

Received: March 2019
Accepted: September 2019

Abstract

This study observes a particular group of students learning medical terms (MT) implicitly through studying medical subjects. That is, based on the policy followed in the context of the study, students shall not receive any deliberate terms instruction. This paper investigates their experiences and attitudes towards acquiring MT in such a situation. Students' acquisition and proficiency, hypothesizing a positive relationship between the two constructs, are self-assessed through pre- and post-test surveys. The surveys included 114 and 95 students in each phase, respectively. Prior to the surveys, focus group discussions were conducted, according to which the questionnaire was developed. A statistical correlational Pearson test was done to examine the relationship between students' proficiency and incidental terms acquisition. The results indicated a significant negative relationship between the two constructs tested. The study also tested the effect of time on increasing acquisition through conducting a paired independent t-test between the two sets of data. The results found that a more extended period was significant to incidental acquisition. Overall, through comparing the means, modes, and medians in the two phases (pre- and post-test), the findings reveal an increase in the students' terms acquisition volume. However, students seem not to favour the approach and still advocate explicit instruction for technical terms.

Keywords: implicit acquisition; indirect learning; specialized vocabulary; medical terms.

1. Introduction

An integral and crucial element of learning subject knowledge is to learn the meanings of new specialized terms in that subject area (Bravo and Cervetti, 2008). Thus, prior to or while preparing students for the specialties they are going to major in, institutions attempt to equip those students with the vocabulary required in their fields. Such preparation usually occurs through English for Specific Purposes (ESP) courses, the core objective of which is to train students in their disciplines' content knowledge through specialized vocabulary.

Specialist/specialized vocabulary, also called technical words (Nation, 2001), or "subject-specific core vocabulary" as defined by Carter and McCarthy (1988), are of special importance to new students due to their lack of familiarity with the terminology.

In the literature on vocabulary acquisition, there is a debate over which vocabulary instruction approach is more effective, which can mainly be put under incidental or intentional acquisition. Supporters of incidental or implicit acquisition generally draw upon Krashen's input hypothesis (1985), which propounds that language acquisition can be progressively reached through "comprehensible input" (CI). This CI is said to be slightly above learners' level of competence (*i+1*). Krashen's reference to competence was initially restricted to language structure and grammar. Later, however, he, and other succeeding scholars, such as Nagy, Herman, and Anderson (1987), Ellis (1994) and Lightbown and Spada (2006), included words and vocabulary in the scope of this competence. For example, Krashen (1989) asserts that learners can acquire a large amount of vocabulary through CI, through the means of extensive reading. Input however is not limited to reading as there is also oral input as a source of incidental vocabulary acquisition (Ellis, 1994).

That said, the process of such vocabulary incidental learning or acquisition is of course neither straightforward nor unconditional. In order to the acquisition to occur, there are usually several factors, pertaining to input and learners (*ibid*.). For example learners' vocabulary size has always been investigated and found to be a positive factor of IVA (e.g., Zahar, Cobb, and Spada, 2001; Webb and Chang, 2015). Nation (2001) indicates that this approach may only be effective when students are already familiar with 95% of the input words they are learning. Considering specialised vocabulary, the target competency in this paper, Waring and Nation (2004) argue that it is difficult for students to grasp and acquire specialized vocabulary if they constitute 30% of a text. In the light of that, the value of ESP classes becomes prominent, and its undertaking should be a prime concern (Hou, 2014), especially when teaching freshmen, whose technical terms capacity is typically limited.

Put differently, although usually approached in incidental learning and acquisition research, Krashen's Input Hypothesis is not always taken for granted; it is often its general concept of natural acquisition for CI that is considered. However, this CI has flawed this specific hypothesis due to its vagueness, over-simplicity, untestability. The hypothesis then is said to lack evidence and validity as put by several specialist critics, (e.g., McLaughlin, 1987; Gregg, 1984)

and interested researchers (e.g., Liu, 2015; Zafar, 2010). Put aside, research has indicated the validity of the hypothesis core, which is the vocabulary gains through reading and listening (e.g., Yali, 2010; Pulido, 2007). Feng's (2017) study reveals that IVA occurs through various modes of reading and listening inputs; namely, reading the transcript, viewing with captions, viewing without captions, silent viewing with captions.

Generally, the discussion over comprehensibility of input may make evident that the quantity or amount of input students should have besides their current proficiency levels, or vocabulary size, is of crucial importance for incidental learning to occur successfully. That can be typical of students targeted in this study; sophomores who have not had any instruction on Medical Terminology (MT), supposedly have little or no knowledge of those terms. The debate on whether explicit or implicit instruction is better for vocabulary acquisition, and apparently weighing theories of IVA, seems to have influenced decision-making in terms of what study plan to follow in the context of the study. Thus, the current study plan has now shifted to a "no ESP courses" plan and, subsequently, no discipline-specific vocabulary or terms are taught. Educators in the study context seem to assume that students may be able to indirectly grasp MT through attending classes or reading textbooks. Since the task of learning specialized terms is currently left to the students, this study intends to assess students' acquisition through this adopted incidental approach.

Researching further the area of specialized vocabulary learning, i.e. in ESP domains, is indeed advocated by researchers such as Sutarsyah, Nation, and Kenndy (1994) and Swales and Feak (2004). According to Gablasova (2014), the area of subject specific language acquisition, especially during the course of learning an academic subject *per se*, has not yet received adequate attention.Thus, this paper attempts to add to the literature on this specific topic by approaching it through IVA perspective. The paper investigates the students' competence of specialised vocabulary acquisition, namely MT, before and after encountering their disciplinary subjects, which stand as a natural oral and written input source.

2. Literature review

Literature in the area of vocabulary acquisition reveals varying theories as to what approaches might yield better word acquisition and retention. A great deal of research has investigated incidental or indirect acquisition in contrast to intentional, direct vocabulary instruction—the subsequent section attempts to highlight areas related to incidental vocabulary acquisition. The argument stems mainly from Krashen's Input Theory (1985), the most relevant theory to the issue under investigation.

2.1. Incidental specialised vocabulary acquisition

Teaching subject-specific terms as an isolated skill is believed to be an inefficient instructional approach. Berger, Woodfin, Plaut, and Dobbertin (2014) asserted that vocabulary is

best learnt when contextualized. Similarly, Schmitt (2008) argued that for vocabulary acquisition to occur, there should be a good engagement with the targeted lexical items. Fisher and Frey (2014) argued that limited exposure to words and phrases in decontextualized situations is not of a sufficient intensity. In such a situation, learners are assigned a list of technical terms that are expected to be encountered in their field, disciplinary subjects. Krashen (2004) placed importance on extensive reading compared to direct instruction in terms of acquisition. Indeed, a breadth of studies, approaching on Krashen's Input Theory (1985), have indicated that a large amount of vocabulary is grasped incidentally—i.e., either acquired through reading or listening, or both. It was found that such an approach could endow learners with a richer grasp of meaning and a more learner-centred learning (Shahrokni, 2009). Besides, many researchers in favour of IVA have recognized that this approach is emphasised more by top-down theories than bottom-up word processing skills (Hulstijn, 2001). Hulstijn (1992) looked into why IVA can be superior to explicit learning. He concluded that incidental acquisition entails inferring meaning, which requires more mental exertions; hence it is more likely to be maintained, compared to just being told the meaning in the latter approach.

Along the same lines, some scholars have argued that academic learning is a natural source of new vocabulary gains (Mohan and Van Naerssen, 1997). The textbooks of a specific field, being authentic materials, are a form of expression that is of fundamental importance for acquiring and expounding knowledge. The discourse of such textbooks largely resembles the academic discourse (Beacco, Fleming, Goullier, Thürmann, and Vollmer, 2015). In other words, a specific subject's textbooks or references contain the academic language that students must master to succeed in their discipline.

According to Bravo and Cervetti (2008), a major component of that language is discipline-specific vocabulary, which is believed to be the most prominent factor in academic success. This can be compatible with Lemke's (1988) early observation that "the mastery of academic subjects is the mastery of their specialized patterns of language use" (p. 81). Coxhead (2018) provides some reasons why specialised vocabulary is of such a prominence in mastering specific academic fields. He discusses that the size of technical words in an academic text is usually estimated as 20% to 30% of that text, i.e. a word in three in a line, what results in that text being technical. Thus, due to such frequency, discipline-specific words in specialised texts are central to understanding those texts. Also, knowledge of a specific field vocabulary is closely related to the content knowledge of that specific field. Or, as put by Woodward-Kron (2008), "the distinct specialist language of the disciplines and their different areas of difficulty are aspects of learning specialist knowledge which students need to come to terms with if they are to be successful in their studies".

Students can then learn the language of their discipline while constructing its knowledge. According to Lee and Spratley (2010), students must be immersed in the language of their

discipline to cope with and produce the specific type of their discipline textbooks, which of course includes its vocabulary.

Correspondingly, learning technical words in the course of academic study yields greater retention of both words and text information (Swanborn and de Glopper, 2002; Gablasova, 2014). However, vocabulary acquisition may not occur unless learners have more time to learn the words incidentally. According to Pigada and Schmitt (2006), the acquisition process of vocabulary is incremental. Thus, a degree of acquisition should be assumed when measuring learners' volume of words. That is, greater exposure to words, similar to high-frequency words, is a factor in acquiring vocabulary incidentally to operate. This indeed is asserted, based on Krashen's (1985) Input Hypothesis, by a breadth of studies indicating that such a process is accumulative, relying on the frequency or repetitions and the rate of exposure (e.g., Webb, 2007; Waring and Takaki, 2003). Similarly, Schmitt (2008) indicates that IVA can be fostered by frequency and time of exposure, more focus on target words, and extended period of learning.

That said, it has also been argued that acquisition based on frequency levels and exposure rate is dependent on students' proficiency or vocabulary size levels. As found by Zahar et al. (2001), students who have a great amount of vocabulary need fewer occurrences or frequencies for acquiring new vocabulary, and *vice versa*. Therefore, student proficiency level is an important factor in incidental vocabulary acquisition (e.g., Schouten-van Parreren, 1992, and Nagy, 1997). Indeed, a study by Mohamed (2015) found a significant positive relationship between incidental vocabulary acquisition and learners' proficiency levels.

One input factor advocating incidental vocabulary acquisition as an approach for ESP learners is, as referred to by Ellis (1994), the saliency of the targeted 'specific' vocabulary. Such specialized vocabulary is of great importance to these learners, as they are useful in understanding texts of their speciality. According to Ellis (1994: 59), "words that are made salient through some kind of focus (e.g., glossing) are more likely to be remembered".

Based on the previous discussion, we attempt to explore from the participants' perspective the degree of students' incidental acquisition of specialised terms, namely Medical Terminology (MT), through studying their speciality subjects.

3. Research aims and objectives

This study aims at evaluating medical students' incidental terms acquisition through their perceptions about the experience of such an approach. More specifically, it aims at assessing the suitability of the implicit acquisition of specialist vocabulary through disciplinary subjects. At the same time, it examines the relationship between the students' self-reported proficiency in English and their technical terms acquisition.

4. Research questions and hypotheses

The study is enquiring into the possibility and efficiency of learning specialized vocabulary (MT, in this case) through the course of studying disciplinary subjects, namely, medical subjects, from the viewpoint of Saudi students. It hypothesizes that (1) there is a significant positive relationship between proficiency levels and incidental specialised words acquisition, and that (2) there is a positive effect from such input on specialized vocabulary acquisition.

- H0 There is no significant positive relationship between proficiency levels and specialised words' acquisition.
- H1 There is a significant positive relationship between proficiency levels and specialised words' acquisition.
- H0 Students will not gain a better level of acquiring specialised terms after receiving much input over a longer period of study in their program.
- H1 Students gain a better level of acquiring specialised terms after receiving much input over a longer study period in their program.

Q1) Is learning specialised vocabulary through the content of disciplinary subjects possible and efficient? If yes, to what extent?

Q2) Are the factors of proficiency and length of study time positively contributing to the acquisition of specialised vocabulary?

5. Methodology

Recognizing that all methods have their strengths as well as their limitations (Johnson and Turner, 2003), we decided to adopt a mixed-methods approach for conducting the study. We opted for qualitative focus group discussions, followed by a quantitative questionnaire administered twice at two different points in time. According to Johnson and Turner (2003), the fundamental principle of mixed-methods research is typically followed to obtain convergence or corroboration of findings, to minimise or exclude alternative explanations derived from the data, and/or to explain divergent aspects of a phenomenon.

The group discussion tool is specifically used to develop a broad view of students and gain comprehensive understanding regarding their experience in acquiring and learning specialist terms (Gaff, 1991). This tool allows for having in-depth discussions that would not be obtainable through questionnaires alone (Fife, 2007). It also elicits multiple viewpoints in a group context (Gibbs, 1997). Gibbs indicated that it is a useful tool, especially when there are power differences between the participants and decision-makers, and when a researcher wants to explore the degree of consensus on a given topic. The type of discussion employed is explor-

atory, which serves as a means of generating hypotheses. We also aimed to use the prominent elements obtained from the interactions of the students through group discussions to develop the questionnaire as a following data collection phase. The questionnaire was chosen to investigate the prevalence of the research problem through the findings obtained from a larger population, and to test any hypotheses that may evolve from the group discussions.

The study follows a sequential qual>Quan design, identified by Morgan (2014) as preliminary qualitative input. It comprises a preliminary set of focus groups that assist in developing a survey instrument or questionnaire in this study. In this design, the initial as well as supplementary qualitative method serves as an input that contributes to a set of inductive, subjective, and contextual strengths, which are useful as a starting point for a core quantitative method. Such a design is also known as Exploratory Design, in which the first qualitative method guides the development of the following quantitative instrument. According to Creswell, Plano Clark, Gutmann, and Hanson (2003), this design is useful for exploring a phenomenon for which a test or instrument is not available, which is the case with this study.

A reliability analysis was carried out on the 14 items of the questionnaire. Cronbach's alpha showed the questionnaire reaching the level of $\alpha = 0.61$., which is, according to Hair, Black, Barry, and Anderson (2006), an acceptable reliability. An Alpha score of 0.5 to 0.75 is generally accepted, according to Hinton, Brown, McMurray and Cozens (2004).

As the wording of the questionnaire was in accordance with the data drawn from qualitative data set analysis, content validity can be assumed to have been achieved. Before administering the online questionnaire, it was sent to two expert colleagues at the English Language Institute, the dean and a board member and former head of English Language Department at the university, both hold PhD in Applied Linguistics and ELT, to ensure face validity. The experts' reviews and comments were taken into consideration before instrument administration.

6. Procedure

The study was conducted over two phases. The first phase included group discussions followed by a survey, whereas the second included a survey. The first tool used in this study constitutes a set of three group discussions conducted at week two of the first semester, of which the first two involved ten participants each, while the last involved 14 participants. All participants belonged to the same class, sophomores who are studying either medicine or applied medical sciences (AMS). The discussions lasted 45 to 50 minutes and were conducted at their schools in available classrooms. After two weeks of collecting qualitative data (week 4), an online questionnaire was administered to students in the same class but from different groups. The second phase was conducted towards the end of the academic year, or week 9 of the second semester. The same questionnaire was used as a post-test, so as to compare the participants' responses in terms of their perceptions of the elements being discussed.

The questionnaire is divided into three sections. The first section attempts to collect biographical data and some variables relating to the participants, such as proficiency and prior knowledge of medical terms. The second section consists of 6-point Likert-scale items assessing students' perceptions of incidental terms acquisition.

7. Data analysis

This section presents the data analysed in the order of the research phases. That is, a brief synopsis of the core of focus group discussions is presented first, followed by the pre- and post-test quantitative surveys.

7.1. Qualitative focus group discussions

Thematic analysis was conducted for the purpose of analysing the data, since discussions generally revolved around certain main themes, including:

(1) participants' disapproval of incidental medical terminology learning,

(2) challenges in learning and acquiring MT,

(3) studying MT as an individual subject or course,

(4) proficiency and incidental terms acquisition,

(5) the need for ESP more than English for General Purposes (EGP) and striking a balance between the two,

(6) the need for L1 with MT,

(7) the importance of motivation and autonomy in learning MT and EGP.

All these points were raised by students, yet with different proportions of participants for each. For example, very few students (nearly 8) showed a preference for learning the medical terms when contextualized in the course of studying disciplinary subjects, indicating that this could increase interest and retention levels. Yet, due to heavy study loads, several other students (17) indicated that learning the terms while attending medical courses is challenging, as it required special focus.

Two students highlighted the difficulty of studying MT even when the meanings were translated into Arabic. They indicated that MT usually needed detailed explanations, and this might indicate the efficiency of studying it when contextualized, whether through a special course containing authentic materials or the medical subjects *per se*.

Four participants, with a more advanced grasp of English, indicated that they did not encounter any difficulty learning the medical terms. Here arises a possible link between a good

proficiency level and the ability to acquire specialized terms. That said, a prevalent part of the discussion data concerned the necessity of studying MT through a special textbook or course during the preparatory year.

Some participants referred to the uselessness of studying general English during that preparatory year in comparison to MT. Other students found that achieving a balance between GE and MT may be a more plausible approach.

Also, the issue of teaching medicine in Arabic, i.e., Arabic as the medium of instruction, was raised by two students. Another point raised by some participants was related to motivation and autonomous learning strategies as to how they improve their proficiency level, including MT (refer to Appendix 1 for the analysis).

7.2. Quantitative surveys

Both surveys were analysed using IBM SPSS Statistics version 23. They were descriptively analysed to generate frequencies statistics of means, standard deviations, modes, and medians for each analysed item in the two surveys.

7.2.1. Participants' biographical data

TABLE 1
Participants' biographical data

	PRE-TEST SURVEY		POST-TEST SURVEY	
Sample Size	N = 114		N = 95	
Program	Medicine	AMS	Medicine	AMS
	63 = 55.3%	51 = 44.7%	54 = 56.8%	41 = 43.2%
Gender	Female	Male	Female	Male
	72 = 63.2%	42 = 36.8%	42 = 44.2%	53 = 55.8%

The sample size at the pre-test survey constituted 119 students who were in their second academic year, attending either the faculty of medicine (63) or AMS (51). Five responses contained missing or incomplete data and were therefore removed; thus, 114 participants remained.

The post-test survey was returned by a comparatively smaller number, 95 students, 41 of whom were attending the AMS program and 54 belonging to the faculty of Medicine. Female participants in the pre-test (63%) were higher than in the post-test (44%). The timing of administering the post-test could be a factor, as it was towards the end of semester, a period when students are usually busy preparing for exams and assessments.

TABLE 2

Participants' self-evaluative proficiency, knowledge of MT, level and degree of terms acquisition

	PRE-TEST SURVEY				POST-TEST SURVEY			
Self-rated Proficiency	Mean	SD	Median	Mode	Mean	SD	Median	Mode
	3.36	1.19	3.00	3	3.82	.911	4.00	3
Self-rated knowledge of Medical Terms	Mean	SD	Median	Mode	Mean	SD	Median	Mode
	2.20	1.18	2.00	1	4.06	.836	4.00	4
Level of Terms Acquisition (self-rated)	Mean	SD	Median	Mode	Mean	SD	Median	Mode
	5.10	.981	6.00	6	.82	.437	1.00	1
Degree of challenges due to Medical Terms (self-rated)	Mean	SD	Median	Mode	Mean	SD	Median	Mode
	4.91	.964	4.00	4	2.29	.682	2.00	2

Responding to a self-evaluative six-point proficiency scale, where 1 stands for poor and 6 for excellent, the majority of pre-test participants chose either 3 or 4 out of 6, while only 16.7% of them chose 5 or 6. Thus, both the median and mode values resulted in 3. Similar values resulted from the analysis of this item in the post-test survey, but with an increase in the median value, which came out to 4.00 in this phase.

The participants' perceptions of their MT knowledge seemed to grow between the pre-test and post-test, median from 2.00 to 4.00, and mode from 1 to 4, respectively.

Interestingly, however, participants' evaluations of the process of incidental acquisition drastically decreased through the two surveys, from median = 6.00 and mode = 6 to median = 1.00 and mode = 1.

That said, the analysis of the level of challenges they face while studying disciplinary subjects, decreasing from median = 4.00 and mode = 4 to median = 2 and mode = 2, does indicate progress in their acquisition.

7.2.2. Perceptions of MT incidental acquisition

This section presents the analysis of statements that aim to assess the investigated approach through students' perceptions in both surveys, pre-test and post-test.

Comparing the means and modes of the first two statements, or *a* and *b* of each phase, it can be said that students showed a stronger positive attitude toward acquiring specialised terms through medical courses in the post-test (a. M = 3.98, Std. 1.14, Md. = 4; b. M = 3.72, Std. = 1.08, Md.= 4) compared to (a. M = 2.85, Std. = 1.21, Md. = 3; b. M = 2.40, Std. = 1.53, Md. = 1) in the pre-test.

TABLE 3

Students' assessment for incidental term acquisition over a certain period of experiencing studying disciplinary subjects

	PHASE	MEDIAN	MODE	MEAN	STD.
a) I have learned many medical terms while studying medical subjects	pre	3.00	3	2.85	1.21
	post	4.00	4	3.98	1.14
b) learning medical terms through medical subjects is much better than learning it through a special course for medical terms	pre	2.00	1	2.40	1.53
	post	4.00	4	3.72	1.08
c) encountering medical terms while studying medical subjects facilitates learning medical terms to me more than could happen by any other way	pre	3.00	1	2.70	1.45
	post	3.00	2	2.91	1.41
d) learning medical terms do not require much effort or long time as I am learning and retaining them through medical subjects	pre	2.00	1	2.22	1.32
	post	2.00	1	2.92	1.17
e) learning and studying medical terms in the context of medical subjects is an interesting way to memorize terms	pre	3.00	3	2.67	1.37
	post	3.00	3	3.21	1.14
f) medical terms should be taught in a special intensive way during the year that precedes studying the major program	pre	5.00	5	3.80	1.49
	post	5.00	5	4.26	1.42

Overall, we notice a positive change within the period of the two tests, except for the last statement *f*, since the increase in the scale means students still value having a course dedicated to studying medical terms exclusively. This can be supported by the results of statement *d*, since the modes at each phase (Md. = 1; Md. = 1) show strong disagreement, which means that students still find learning terms through subjects challenging.

Interestingly, the mode of statement *f* at each phase did not change (5 in both). Indeed, through looking at the change in the means in both phases (from m = 3.80, Std. 1.49 to m = 4.26, Std. = 1.42), students seem to end up further supporting the idea of receiving explicit direct instruction in MT throughout the preparatory year.

7.2.3. Hypotheses tests

1) The participants' self-evaluative proficiency level is generally intermediate, calculated as Md = 3 in both surveys. That being said, correlation tests (the Pearson Product Moment Correlation) between items that reflect students' self-assessed proficiency in acquiring medical terms incidentally show a significant negative relationship between the two variables r = -.192, n = 114 *p-value* = .040 at ($p < .05$). Thus, the null hypothesis is accepted.

2) Based on input-output theory, the study hypothesised that the learners' assessment of attitudes towards incidental acquisition will grow positively in the course of the study. Indeed, the quantitative data, comparing means, modes, and medians on specialized vocabulary acquisition, which assesses students' responses in pre- and post-tests, shows a positive increase in their attitude towards the discussed approach (refer to Table 3), e.g., (*pre*: mode = 3, *M* = 2.85, SD = 1.21; *post*: mode = 4, *M* = 3.98, SD = 1.14). In addition, the hypothesis was tested with a paired independent t-test to indicate the level of acquisition in the study. Results show that the p value is .000, less than .05, thus the null hypothesis is rejected, t (90) = -6.40, **p = .000**, t (89) = -7.14, p = .000, t (89) = -3.24, **p = .002**.

8. Discussion

This research enquiry aimed at investigating target students' experiences and attitudes toward acquiring their field specific terms while studying medical subjects, whether via their teachers or textbooks.

The data, especially quantitative, indicate that the approach being discussed is relatively efficient. This can be established through the challenges faced by students due to MT, since it has decreased from mode = 4 and MD = 4 to mode = 2 and MD = 2, as shown in Table 2. Besides, analysis of both statements *a* and *b* in Table 3 can indicate students' positive attitude toward the experience of acquiring terms through medical subject content. Statement *a* shows students' assertion for the occurrence of acquisition and its increase through the period of study, from M = 2.85, SD = 1.21, Md. = 3 to M = 3.98, SD. 1.14, Md. =4. Similarly, students indicate that learning MT through subject content is more efficient than in a special course, as revealed by statement *b* analysis, and they seem to establish a firmer opinion through the post-test survey, from M = 2.40, SD. = 1.53, Md. = 1 to M = 3.72, SD = 1.08, Md. = 4. Besides, statement *e* shows a moderate though neutral agreement about finding such a learning approach interesting. In addition, students' self-evaluative rating for their MT knowledge throughout the period of the two surveys seem to affirm the conclusion, i.e., the efficiency of the discussed approach, from Md. = 1 to Md. = 4 (refer to Table 2). These findings support the studies that have advocated implicit or incidental vocabulary acquisition, such as Hulstijn (1992), Shahrokni (2009), Yali (2010), Pulido (2007), and Feng (2017). Having displayed a growth in vocabulary, students seemingly approved Schmitt's (2008) argument. In that argument, Schmitt indicated that longer, increased, and greater engagement with lexical items fostered vocabulary acquisition, which is typical of what the participants in this study have experienced.

However, the analysis of other items, such as *c* and *e*, reveals comparatively lower or moderate stances towards the issue at both pre and post surveys; c. from Md. = 1 to Md. = 2, and e. from Md. = 3 to Md. = 3. Students seem to find learning MT through the medical content challenging. This can be further established through the radical decrease in their opinion regarding their level of acquisition through the two surveys, as shown in Table 2, from Md.

= 6 to Md. = 1. These findings support the claim of many researchers, such as Macaro (2003), Laufer (2005), and Read (2004), that incidental acquisition is still less efficient and debatable. One side of the argument is related to proficiency, i.e., the approach may be more efficient when students generally have good proficiency levels, as in Mohamed's (2015) study, which has been asserted by the qualitative data in this study (refer to Appendix 1).

Furthermore, the density of MT frequency may have contributed to this stance. As Waring and Nation (2004) argued, if specialized vocabulary constitutes 30% of a certain text, considering students' low or moderate proficiency levels, acquisition can be hampered. Moreover, the neutrality inferred, e.g. statement *e* in Table 2, might be justified by the students' heavy loads and stress due to the difficulty of the medical field. In their case, medical subjects are considered new to them, along with the fact that they are loaded with terms that are difficult in themselves. It is widely recognized that MT are lexically complex, mostly Latin and Greek words. Laufer (1997) illustrated some of the word factors that may curb incidental acquisition, such as difficult pronunciation, orthography, and mismatch between the written form and pronunciation, all of which are applicable to MT.

That could be a reason why a majority of the students advocated studying medical terms through a specific course or module (see statement *f* in Table 3). In fact, research has also revealed that teaching language items explicitly leads to effective learning and acquisition. Hyso and Tabaku's (2011) study emphasized the importance of explicit instruction to university students based on its positive findings. Besides, comparing the two modes of learning vocabulary, i.e. explicit and implicit, Mirzai (2012) and Al-Darayseh (2014) found explicit instruction to be as well effective as IVA, especially in a model that combines both. Sutarsyah et al. (1994) advocated paying careful attention to direct teaching of specialized vocabulary, especially vocabulary of high frequency. According to Donesch-Jezo (2014), instruction can be in the form of deliberately teaching vocabulary through specific courses that contain authentic materials, which is also referred to by some students in the qualitative data.

In general, the data asserts Schmitt's (2008, 2010) opinion that both modes of learning are acknowledged as balancing each other pedagogically in the process of incremental vocabulary development.

Thus, we can say that from the students' perspective, this approach can be "to a certain extent" (if not totally) effective. In other words, acquiring MT incidentally can occur, but the acquisition may not be optimal.

9. Conclusions

The discrepancy revealed through the data, although slight, led to difficulty in making a firm and well-informed conclusion regarding the efficiency of incidental MT acquisition. The data

indicates an increase in means, modes, and medians through the period of the study in almost all related statements' results, as shown in Table 3. At the same time, participants still want instruction for the discussed specialised vocabulary. That means acquisition did occur, but some external pressures related to the field of medicine were in play that made it challenging to achieve optimal results. In fact, the saliency and peculiarity of MT should be considered. Thus, in a pressure-free context or in a situation different than medical zones, it is highly expected that such an approach would be effective. The study would be more rigorous if it were possible for the research to run a standardized English proficiency test, or obtain any set of data that objectively indicate students' levels of proficiency. Based on a thorough analysis and review of the data, striking a balance is advised between implicit and explicit acquisition from the students' side, which means a balance between direct and indirect instruction.

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11. Appendix: Qualitative Focus Group Analysis

Reluctance to Incidental Medical Terminology Learning:

- We retain and remember more when it is within the medical subject we study itself.
- Learning terms through the speciality is more interesting than studying it in the book of the preparatory year.

- Is there time essentially?!
- It is very difficult for students with such a number of lectures, duties and tightness of time.

Medical Terminology is a Challenge:

- I had the book of medical terminology, but I faced a huge difficulty understanding a lot of points.
- I don't understand most of the terms even when helped with the available translators as there are many terms that seems meaningless or that is because they are medical.

Proficiency Level and Incidental Terms Learning:

- I did not study medical terms as a subject, and I don't face any difficulty, thank God.
- May be a bit at the beginning, it needs some translation and understanding, but after about a month I got used to it.
- Before we begin the year of the program, I attempted to have a look and get idea about the subjects and read to get familiarized, although it was slight and not intensively, but it was helpful and I did not feel big challenge while studying.
- During the first year, I did not feel English subjects were interesting or saying something new that could raise my interest, so whenever I had time, I had a look at the medical terminology book which previous batches studied.
- I memorize the term with the context of the information that is being said and it is retained as it is even without being literally translated into Arabic.
- Student acquire vocabulary and medical terms through studying them and knowing them comprehensively and much better when all listed in a special course, but ...

Medical Terminology as a Subject:

- Omitting medical terminology is decision and its results appeared in the second year as we don't have adequate amount of medical terms and we faced difficulties in some subjects because of this decision.
- Medical terminology subject must be taught instead of the courses offered to us at both first and second year.
- It's so bad to exclude medical terminology from the preparatory year for students who belong to the medical field, they told us it was to be introduced in the first year then they did not, bearing in mind that we had a huge difficulty studying the courses.
- Teaching medical terminology as a course is so important.

- My suggestion is to support teaching medical terminology and make that intensive through the preparatory year so that what happened to 2017 batch does not happen to us. Those who studied it in the first year had less challenges in the second year.
- Unfortunately we are struggling with understanding medical terms and teachers don't help us at that, the biggest mistake committed by the university was to take out the medical terminology. We wish that this plan gets modified and they put it back.
- We wish they put the medical terms back for preparatory students year so they don't face difficulty in the speciality.
- We hope they reconsider the decision of eliminating medical terms subject.
- I think studying medical terms during the preparatory year is extremely important due to the difficulties we had in grasping the medical terms in the specialty as we should have known them earlier.
- Teachers treat them as if we have already learnt the vocab and term before, they should be aware of that we did not study it before while teaching us, and they should explain to us the meaning of each vocab we find difficult.

ESP over EGP

- We are in a very critical situation and having bad circumstances due to that decision of not teaching medical terms, it is much more important than general English as we study Medicine not the language.
- I haven't got any use of general English, at all, in my medical major as it is all medical terms.
- Studying medical terms is much more important than English.
- Even when student can teach himself, the subject of medical terms is so important and should be taught instead of general English.
- Preparatory year courses are not suitable, we study intensive English from the first week, and I did not get any benefit when joined scientific classes, the teachers speak to me as if I already understood all the medical terms.
- I wish they change the plan for general English to Medical Terminology.
- I don't know why all what we had studied before was repeated during the first year, it is just a waste of time.

Balancing ESP and EGP

- We should study both English and Medical terms before we join the second year the year of speciality so we become well-prepared in both.
- Medical Terms and English, should both be taught with high standards.

Using L1 as a Medium of Instruction

- They should consider teaching scientific subjects in Arabic so we learn it better and easier not with much efforts because of the language
- If only we study the scientific subject matter in a good way thorough Arabic so we fully understand it first then we learn it in English so we don't lose the knowledge.

Autonomy and Motivation

- If you do want to understand, you will try to improve your language by any means, the most important thing is that you have the intention to learn.
- Schools are not forced to teach us everything, we have to learn a lot of things about life from life, and same thing with knowledge, we should seek learning.
- I did learn by watching some medical films.
- I trained myself during the summer vacation.
- I searched the net for useful websites.
- I read about it a lot.
- If the student wants to learn, learning medical terms can be done by buying books and searching internet.