

Vocabulary Recognition Strategies: Theory and Practice within ESP Domains

Jazan University – Saudi Arabia

Dr. Atef Ali Mohamed Nasr

Atef_3@hotmail

Abstract

The current study discusses vocabulary recognition strategies and sheds some light on the findings of a study conducted among English for Specific Purposes (ESP) teachers and students at Jazan University in Saudi Arabia. More specifically, at college of science wherein English is a high-credit subject in the University Foundation Year (UFY) and it is used as a means of instruction. The most crucial problems that hinder teaching and learning ESP materials among Arab students are due to the specialised lexical items included in the texts they have to deal with. The research problem is verified via conducting group interviews with English teachers and students at Jazan University where several different ESP courses are administered in order to equip students with the necessary linguistic competence that enables them to use English as a medium of instruction. In the UFY, the students receive an Intensive English Language Programme (IELP) that aims to enable them to use English for Academic Purposes (EAP). The IELP runs for up to one academic year divided into two semesters; each is 14 weeks long. The first semester is devoted to developing general English skills and is referred to as level one, whereas the second semester which is known as level two focuses on developing ESP and communication skills within students' specializations.

Semi-structured interviews, class observations, and two questionnaires were used for data collection (See appendices 1 and 2). The researcher was assigned among the Teachers Evaluation Committee (TEC) members for one semester, and therefore he was entitled to observe several ESP classes. (He had the opportunity to observe up to 24 ESP teachers of different nationalities who were teaching different ESP courses according to students' majors; i.e. engineering, medicine, science, computer science and informatics, and business administration). In this research, the most common ESP difficulties and problems, particularly those which pertain to vocabulary were investigated, discussed and analyzed. Then, some vocabulary recognition strategies were suggested and applied among level-two science students, as a typical example of Arab students at the tertiary level.

Key words: University Foundation Year, linguistic competence, Intensive English Language Programme, communication skills, Teachers Evaluation Committee

Introduction

In Saudi Arabia, as most Arab counties, students of scientific subjects including medicine, dentistry, engineering, computer science and informatics, etc. need access to educational texts written in English as these may be of value for their academic purposes. They very often face some degree of difficulty in comprehending these texts, or at least in extracting appropriate or accurate meanings. They may misunderstand the meaning or may not fully grasp the author's intention. This difficulty might be due to the unfamiliarity of some words which the reader may encounter while reading a text, or to problems concerning the scientific content, particularly when s/he lacks previous background knowledge about the topic. In our situation, most of these lexical items are technical or subject-specific lexical items. It is very important for students in

such situations to apply certain strategies and techniques which may help them to work out the meaning of some unfamiliar words, and proceed to read with speed and clarity. In other words, the learner may need to employ a number of recognition strategies in order to surmount the vocabulary problem; i.e. making use of textual clues intentionally provided by the writer for readers. The following study, therefore, discusses the effective role of vocabulary recognition strategies as a means to overcome the ESP problems as far as difficult lexical items in ESP domains are concerned. That is to say, mobilizing of contextual clues may help in working out meanings of some words as an alternative to looking them up in a dictionary, and this may help to reduce the barriers of teaching and learning ESP materials due to the inextricable relationship between vocabulary and technical and scientific texts. Practicing vocabulary tactics has been advocated by several ELT and ESP practitioners and researchers, such as Bramki and Williams, 1984; Williams, 1980, 1985; Van Parreren and Schouten, 1981; Brown, 1980; Sager, 1980; Trimble, Sahekian, 1991, and Pritchard and Nasr 2004. The current study discusses these strategies theoretically and practically among Jazan University teachers and students who have crucial challenges and difficulties in ESP classes (see Appendices 1 and 2). The latter is a typical example of the Arab students at the tertiary, for whom English is as a must for their academic and professional careers.

Vocabulary Recognition Strategies

Vocabulary recognition strategies are ways in which the reader works out the meaning of difficult words that he/she encounters while reading. They are given priority in dealing with unfamiliar words whilst reading (Grellet, 1981; Nuttall, 1996). Efficient readers can employ tactics for puzzling out and understanding unfamiliar lexical items. On the contrary, students used to look up difficult words in bilingual dictionaries or get direct translation from their teachers, and this consolidates the current study problem. In this regard, Sahekian (1991) and Nasr (2002) assign the Egyptian university students' in English language to the pre-university stage wherein, the students practice improper reading ways due to the inevitable desire of using bilingual dictionaries in dealing with difficult words. Therefore, the focus here will be on textual clues as an alternative method to surmount the problem of unfamiliar lexical items. Since the current study is in ESP domains, it is necessary to shed some light on the strategies that work well in dealing with the specific genres of scientific texts. Bramki and Williams (1984), and

Williams (1980) suggest some strategies that are appropriate to the field of ESP, such as inferring from context, unchaining nominal compounds, searching for synonyms, word analysis, and recognising lexical familiarisation devices. Lexical familiarization is a key vocabulary recognition tactic that might be overlapped with other lexis identification techniques in that they all explain the meaning of words. However the former can be distinguished from the latter in that it is a writer-driven strategy that is always adjacent with newly introduced words whereas vocabulary recognition strategies are reader-operated tactics. The difference is also demonstrated in the signalling language that is always accompanied by lexical familiarization and the different typeface of the target word.

Statement of Problem

The current study investigates problems among teachers and students at Jazan University in relation to ESP courses due to the specialized and technical vocabulary. Although English is of particular importance to students, particularly those who are in scientific domains, there are problems for both teachers and students. The former pertains to the critical teaching situations as far as dealing with specialist texts is concerned, but the latter refers to the students' low-level English skills and the dissatisfaction of subject-matter teachers in relation to the students' poor communication skills. Students find some difficulty in learning ESP materials due to the lexical complexity of very scientific and technical texts included in the units being dealt with; they feel at ease to look up difficulty words rather than practicing vocabulary strategies and techniques, and this is ineffective in ESP domains wherein there are very technical and specialist texts. Several words in scientific and technical areas don't have Arabic equivalent, and therefore they are not listed in the bilingual dictionaries. Also, the teachers' lack of the text background knowledge adds a further barrier to the teaching process (Afferbach, 1990: 3). Hence, the teachers, who can practice vocabulary strategies and techniques, will not be able to work out the meaning of unfamiliar lexical items due to their lack of background knowledge about scientific texts. Accordingly, they will be in critical situations with their students, who are always more knowledgeable about the text content due to their previous education. Consequently, the ESP courses don't achieve the target objectives, and this creates dissatisfaction for both students and teachers in relation to ESP classes at Jazan University.

Aims of Study

The study aims at investigating ESP problems among students and teachers at Jazan University in the Kingdom of Saudi Arabia as far as specialized scientific and technical words are concerned and then suggesting some applicable solutions in terms of practicing vocabulary recognition strategies.

Research Subjects

1. ESP teachers at Jazan University, Saudi Arabia (No. 24)
2. Level two students at college of Science, Jazan University (No. 67)

Research Tools

1. Students' Questionnaire
2. Teachers' Questionnaire, Class observation, and Semi-structured interviews

Historical Backdrop about English for Specific Purposes

In the early 1960s, there were many reports from all over the world of a growing dissatisfaction with the language teaching practice, where all learners were served up with literature regardless of their aims, needs or interests (McDonough, 1984:4). Hence, the branch of the English for Specific Purposes (ESP) became a bud in the tree of English Language Teaching (ELT). This means that ESP has emerged as a consequence of the inability of the General English courses to fulfil learners' actual needs which are very often academic, professional or a combination of both. "ESP is an approach to English language teaching which is directed by specific reasons for learning" (Hutchinson and Water, 1987:8). Also, this is advocated by Dudley-Evans and Maggie (1998). Dudley-Evans is among the authors of the "Nucleus –General Science Book" which was used among the science students at Jazan University.

ESP among Jazan University students

Jazan University offers a number of highly demanded scientific and technical majors through many academic departments, and English is used as a medium of instruction. Therefore, the students need English for certain purposes and are highly motivated to learn it for their academic and professional future. Therefore, the main objective of the Intensive English Courses in the UFY is to prepare those students to be able to use English as a medium of instruction and leaning in their specialist disciplines, and this is the core of ESP (Nasr, 2002).

Background of College of Science

This is a pure educational and scientific setting wherein students study different areas of science, such as physics, chemistry, biology, and mathematics. English is of particular importance for those students, as it is used as a means of instruction and learning. In addition, most of subject-matter textbooks and references are in English. Therefore, it is very important to develop certain English language skills in order to enable them to use English for academic purposes. That is to say, the English materials being used among the students at college of science should meet their actual needs, and this is a key aspect of ESP. Certain reading skills necessary for engineering students in Egypt are determined by Nasr (2002:107) and for specific education students are listed by Hussein (1997).

Challenges of Teaching ESP courses at Jazan University

The result of the class observations and semi-structured interviews with the ESP teachers (N. 24) at Jazan University indicated to some obstacles during teaching English to level two students. These difficulties are due to the scientific context and content of the texts which are almost adjacent to specialist lexical items, nominal compounds, and non-verbal information and scientific formula. Added to this, the teachers' lack of the schemata about the topics included in these scientific texts hinders making use of contextual and textual instances to reduce the barrier of understanding such difficult texts. More importantly, the wide gap between the students' background knowledge and that of the teachers as far as texts topics are concerned due to the nature of the previous education of each, bearing in mind the cultural aspect of Arab students. Culturally speaking in Arab countries, the teacher is an information source and has to answer any question addressed by students to attain their satisfaction in the teaching process. This, in fact, maximizes the challenging rate of administrating ESP courses among Jazan University students, and this is referred to by Prichard and Nasr (2004:443).

Relationship between language teachers and students in ESP classes

Activating students' appropriate background knowledge is the concern of the ESP teacher in the class. This can be done by addressing simple questions about the main points of the unit, and the teacher can get an access to these points via the title, figures, headings, and sub-headings of the text. Suggested Simple Questions about the text on page 10, section 4 (Nucleus Book – General Science): *What is a substance?, Mention some substances, Are there some substances in the classroom? If so, what are they?, What are the properties of(some substances)....?, What is*

the melting / boiling point of ? Such questions may activate students' background knowledge about the text that is about substances and their properties, and this in turn will generate teachable materials/ information to the teacher, and this was applied successfully by Prichard and Nasr (2004:434-435).

Relationship between Language Teachers and Subject-Matter Teachers in an ESP Class

The relationship between an ESP teacher and subject-matter teacher is very important. It has been controversially discussed, and several questions are raised about the job of ESP teacher;

does s/he teach language or subject content, or both? If s/he instructs the former, what is the connection with the latter? What is the relationship between specialist subject lecturers and language teachers? Do they collaborate? and if so, who does need the other more? Such issues are of vital importance for us as ESP teachers. There is a mutual collaboration between them; a language teacher always needs consultation about specialist texts and the subject students and lecturers need linguistic competence so that they can deal with English texts efficiently. Also, it is very important to consult science teachers to be able to select the proper ESP materials and set the objectives of the English class well.

Relationship between English Teachers, Subject-matter Teachers, and Students in ESP Classes

The ESP issue essentially concerns three aspects: the ESP teacher, the subject-matter instructor, and the ESP learner who is sometimes expected to be more knowledgeable than the ESP teacher with regard to some chunks of specialist information. This, in fact, may contribute to ESP problems both for the teacher and the learner. However, the skilful ESP teacher should be able to make use of the student's potential content background knowledge and get some scolding hints from the specialist teachers in order to reduce the lexical and content complexity of some texts. Therefore, it is necessary to attain harmonization between these three elements (the ESP teacher, the subject-matter instructor and the ESP learner) in order to achieve successful learning situations in ESP classes.

ESP Perspectives between Theories and Practice at Jazan University

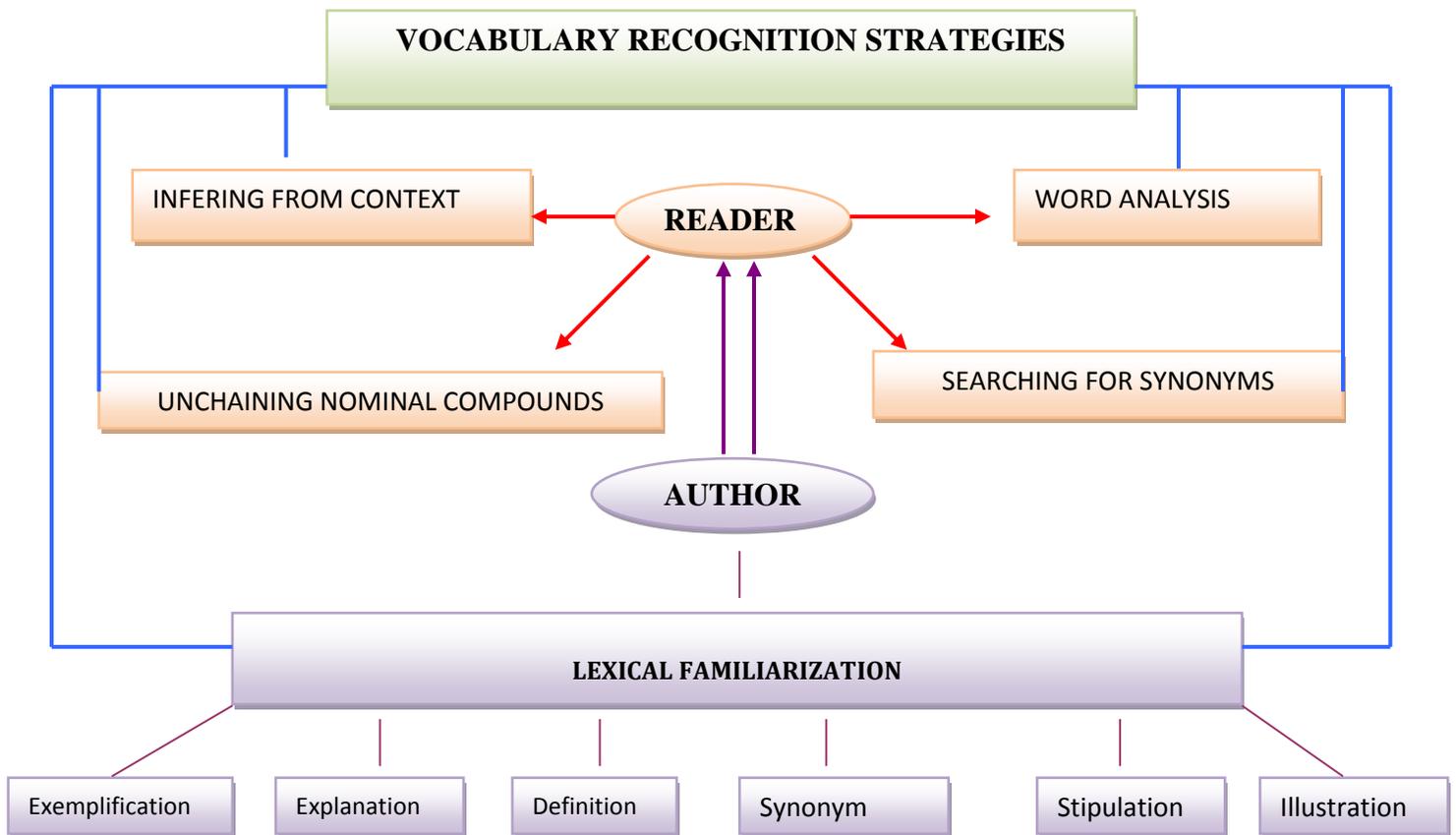
First of all, it is necessary to recognize that there are inevitable problems in teaching ESP materials among non-native speakers of English language due to the aforementioned reasons which are based on

two main aspects: the specialist content of texts and the technical and scientific lexical items adjacent to these texts. ESP teachers should be aware of the fact that they are teaching language rather than the content. Furthermore, they are not expected to be knowledgeable about the texts they are dealing with in ESP classes as they teach the linguistic aspects of these texts. They may make use of their students' background knowledge and reduce the barrier of teaching, and therefore construct positive teaching situations (Nasr 2002). On the other hand, it is the turn of the teacher to activate the students' schemata by addressing some simple questions about the topics stated in the texts. Examples of these questions are: what is X?, what is X used for? where can we find X? what is X made of?, etc. Such simple questions often activate students' background and construct communicative situations, and this will definitely provide the teacher with instructive hints about the text topic (see Nasr. 2002:102). This students-based

scaffolding may drive the teacher to successful teaching situations in ESP classes. Much scientific knowledge could be gained by the teachers via their science students at Jazan University, and this may reduce the challenging barrier of teaching ESP materials. Secondly, it is very important from the very beginning of any ESP course to make clear that the students are taught English language and not subject-matter knowledge in ESP classes. Therefore, the teachers should prioritize teaching the expression rather than the content of texts regardless the cultural aspects of Arab students as far as the role of teacher is concerned. This will restrict the problem of teaching ESP materials and reduce the negative impact of the wide background gap between the students and their teacher in relation to texts specialized knowledge.

The second aspect of the ESP problem pertains to the technical and scientific lexical items included in texts the teachers have to deal with while teaching. It is common that Arab students are familiar with looking up difficult words in bilingual dictionaries, and this may not help them as most of new specialist lexical items that appear in English texts don't have equivalent in Arabic language. Alternatively, depending on the textual and contextual clues may be more effective in working out the meaning of some difficult words. Therefore, it could be more effective to employ vocabulary recognition strategies and techniques to deal with unfamiliar words rather than using dictionaries. Vocabulary recognition strategies could be described as textual or contextual clues that are intentionally provided by authors in order to improve the writing structure and elucidate newly introduced words or expressions in specific situations. Also, they could be applied or practiced by readers in order to interpret the meaning of words. That is to say these strategies have two aspects: texts-driven information that is given by authors

and reader-driven information that is processed by readers. Inferring from context, word analysis, unchaining nominal compounds, searching for synonyms and lexical familiarization devices are typical examples of vocabulary recognitions strategies, and they will be discussed theoretically with applied instances with Saudi students at the tertiary level in the subsequent section. These vocabulary recognition strategies and their connections with both reader and author are displayed in the following figure.



Lexical Familiarization and other Vocabulary Recognition Strategies

Vocabulary recognition strategies are ways in which the reader works out the meaning of difficult words that he/she encounters while reading. They are given priority in dealing with unfamiliar words whilst reading (Grellet, 1981; Nuttall, 1996; Nasr, 2002). Efficient readers can employ tactics for puzzling out and understanding unfamiliar lexical items. Since the study deals with ESP problems, it is necessary to shed some light on the strategies that work well in dealing with the specific genres of scientific texts. Bramki and Williams (1984), and Williams (1980) suggest some strategies that are appropriate to the field of ESP for students who study in the area of economy and business, such as inferring from context, unchaining nominal compounds, searching for synonyms, word analysis, and recognizing lexical familiarization devices. Also, Nasr (1994) advocates the effectiveness of these strategies among the students doing courses in scientific domains, and some of these strategies were applied successfully and reduced ESP problems among science students at Jazan University.

Inferring from context

Words context is always associated with the issue of background knowledge, and ESP teachers should therefore draw students' attention to importance of context when interpreting unfamiliar lexical items. Context comes from the Latin and refers to how something is made. It is the elements of a piece of writing, speech, etc. that precede or follow a word or passage and explain its meaning. That is to say, it indicates to the adjacent words that surround the target word being given elucidation. The context elements could be a doer/agent, place, time, reason, or a combination of all. Accordingly, an author often includes hints, or clues, to help the reader expand vocabulary range and grasp the meaning of a piece of text. To highlight the importance of context, consider the following example:

1- *"In the workshop, a mechanic usually uses a **file** for smoothing the two surfaces of steel, which touch each other in order to reduce any possible friction".*

2 - *"In the office, a secretary usually uses a **file** for keeping all important documents so that she/he can have an easy access to any of them at anytime."*

Here, the word 'file' is orthographically, morphologically, and phonologically the same in each example, but it is used with entirely different meanings in the two different contexts. In the first

example, words like ‘workshop’, ‘mechanic’, ‘smoothing’, ‘steel’, and ‘friction’ would definitely guide the reader to the realization that ‘file’ refers to a metal tool with a rough surface for smoothing hard substances. However, in the second example, word like ‘office’, ‘secretary’, ‘keeping’, and ‘documents’ will show that the same word ‘file’ refers to any type of holder, drawer, etc. for keeping or folding loose papers together. So, we can assume that the context which identifies the place (workshop/office), the purpose (smoothing/keeping) and the person or agent (mechanic/secretary) determines the meaning of a word. That is to say, the student can puzzle out the meaning of some difficult words by working out its context. Words with different meaning are called “polysemous”, “delexical”, or “procedural” (Widdowson, 1983:92).

Word Analysis

Word analysis is another way by which the reader can work out the meaning of difficult words. In this context, ‘analysis’ means the breaking down of the word into parts or chunks. A reader may be familiar with one part and this may lead to understanding of the word. Thus Brown (1980) states that “some words are made of parts and these give direct clues to the meaning”. The common roots and affixes or prefixes help with many words. For example, a word like ‘*abnormality*’ seems unfamiliar. But by recognizing that it is the noun that is derived from ‘*normal*’, its meaning can be easily worked out as ‘*irregularity*’.

This strategy is important in the field of ESP as non-native readers always come across long and difficult words. Dividing these words into parts will help the reader pronounce and understand the meaning of the word. Sometimes when the reader pronounces the word correctly he /she will be able to recognize its meaning, particularly if the word has no equivalent in his/her mother tongue language. For example, Arabic does not include equivalents for some English scientific and technical terms; e.g. ‘*electroencephalograph*’, ‘*electromagnetism*,’ ‘*photolithography*’. The word *electroencephalograph* is made up of three chunks: ‘*electro*’ (from electricity), ‘*encephalo*’ (something related to the inflammation of the brain), and ‘*graph*’ (that is an instrument for recording or drawing). From these word-parts, we might therefore deduce that *electroencephalograph* is an instrument for detecting and recording the brain current produced by the activity of the brain. The same can be done with ‘*photolithography*’ that is composed of

'*photo*' and '*lithography*'. In this regard, Williams, (1985:128) states "In reality, the reader draws on his knowledge of other, familiar words that contain the word-part concerned, and then synthesizes those word-part meanings in order to puzzle out the meaning of the unfamiliar word". Prefix and suffix knowledge may help in understanding some difficult words; for example, '*semiconductor*', '*malfunction*' '*tetrachloride*', etc.

Unchaining Nominal Compounds

Another important vocabulary recognition strategy is 'unchanging nominal compounds'. Nominal compounds are defined as two or more nouns plus other necessary words adjectives that together make up a single concept. These types of vocabulary are very common in scientific texts, as they convey complex overlapping meanings that cannot be expressed by individual words. Examples: '*fire-resistant roof*', '*short term loan*', '*two-cell flash treatment*', '*current reference direction*' and '*stove pipe hat*' and '*a long-term surveillance test plan*'(Trimble (1985:133) .The more words a nominal compound contains, the more confusion it may create for students. Further examples from Nucleus Book – General Science, Page: 10 '*a soft silvery-white metal*', '*a poisonous yellow gas*' and '*a harmless white substance*'. It necessary for students to identify the stem and qualifiers included in a nominal compound and then puzzle out the core meaning from its stem.

Searching for Synonyms

In English, it is not stylistically felicitous to repeat a content word close to its first occurrence which is why a writer uses a synonym for it – a word or phrase that has the same meaning as another in the same language, e.g. beautiful/nice, compulsory/obligatory, school/college etc. When the author tries to avoid the repetition of words, he /she is sometimes obliged to use an unfamiliar word and this could contribute to reading difficulties among non-native learners. The reader, therefore, should learn how to puzzle out the meaning of such unfamiliar lexical items by looking for their familiar equivalents which often occur earlier in the text. This idea is supported by Williams (1985:127) who states, "The writer usually uses the familiar synonym earlier in the text than the less familiar one". In addition, Williams assumes that the two synonyms usually occur in the same syntactic environment and part of speech. This can be clearly explained in the following example:

*“Most volcanoes remain in the state of **inactivity** for a long period – sometimes, hundreds of years. But this period of **quiescence** is suddenly broken by an outpouring of red-hot lava, which destroys everything in its path.”*

The two synonyms are ‘*inactivity*’ and ‘*quiescence*’- the familiar word precedes the unfamiliar one; i.e. ‘*inactivity*’ is more common and it may be easier for the reader to recognize its meaning which can be worked out by processing the prefix ‘*in*’. In addition, the two synonyms are used in a similar way (they are both non-countable nouns) and occur in the same syntactic environment (they are preceded by ‘*of*’). Understanding difficult words by employing the "synonym strategy" may be effective with ESP learners as synonyms frequently occur in scientific and academic texts. In addition, the highest rate of familiarization is achieved by providing synonyms in three engineering texts (see Nasr, 1994: 45).

Lexical familiarization

Lexical familiarization is considered as the parent strategy of vocabulary recognition and it forms the mainstay of vocabulary tactics, involving several strategies for working out the meaning of some unfamiliar words occurring in scientific texts. It is defined as a contextual aid, intentionally provided by the author for a specific reader (Bramki and Williams, 1984). It includes exemplification, explanation, stipulation, definition, and illustration. It is always adjacent with newly introduced words which are always written in different typefaces, such as italicization, bold form, underlining, or any other typographic device. Students should recognize the languages or instances associated with the lexical familiarization so that they can interpret the meaning of some difficult words. The familiarization language depends on the type of the elucidation being given to the target words. In exemplification, words like “*for example*”, “*for instance*”, “*such as*”, “*such thing as*”, “*provide an example*”, and “*is typified by*” could be considered as signals of exemplification familiarization. This vocabulary recognition strategy can be clearly shown in the following examples: “*For some people, **luxuries** of life include such things as cars, television, mobiles, videos, and domestic appliances.*”

The most common signals used in explanation familiarization are ‘*means that*’, ‘*is/are known as*’, ‘*is/are taken to mean*’, ‘*refers to*’, and ‘*concerns*’. This can be clarified in this example:

“Hydrodynamics refers to a branch of mathematical physics dealing with interactions between an electrically conducting fluid and a magnetic field”.

Familiarization can also be achieved via giving a definition to a difficult lexical item. The most common language familiarization, as stated by Bramki and Williams (1984:178) is " *X is/are called Y, X is/are known as Y, X refers to Y, X is/are understood to be Y, the term X is used to describe Y, X can be defined as Y.* Examples: "A **pneumatic** motor can be defined as a compressed air engine. It is a motor which does mechanical work by expanding compressed air".

Synonym is another important form of lexical familiarization achieved when a number of words have the same meaning. That is to say, it has a double-purpose for the writer; firstly to improve the phraseology by avoiding the repetition of the same word in adjacent sentences, and secondly to give some familiarity to the difficult ones. The latter can be considered as a contextual aid targeted to the reader. Giving synonyms is the most important device associated with scientific texts. In addition, a different type of synonym emerges in scientific texts, such as ‘synonym with proviso’ or ‘synonym with explanation’ (Nasr, 1994). These instances of familiarisation are different from those discussed by Bramki and Williams (1984) who studied the occurrence of lexical familiarization in an economic corpus. The following examples demonstrate synonym with proviso and explanation: *“The combination of the principle of relativity with the finiteness of the velocity of propagation of interactions is called the **principle of relativity of Einstein.**”* and *“The deviation of light in transforming to a new reference system – a phenomenon is known as the **aberration of light**” (Landau and Lifshitz, 1980: 2-13).*

That is to say, the nature of the text determines and affects the choice of the lexical familiarization to be used. In other words, Economics texts may require types and patterns of familiarization that are different from those that occur in Physics or Chemistry texts. From the examples and discussions above, it is obvious that this clue is of particular importance for science and engineering students. It is signalled by ‘stands for’ ‘is referred to as’, ‘is called’, ‘is known as’, ‘is said to be’, and ‘is termed as’.

Stipulation is giving a certain meaning to a word in a particular field. That is to say, the word will be explained according to the subject-area in which it is used. In other words, the meaning of the target word(s) is strictly adhered to its context. Consider this in the following examples:

*“In the context of electronic circuits, **analysis** generally means finding voltages, currents, and/or powers given device characteristics and the component values in a circuit.” (Bogart, 1986:3)*

The word ‘**analysis**’ has a certain meaning which is entirely different from its well-known meaning. So, one of the main characteristics of stipulation language is that the word being familiarized has different meanings according to the field in which it is used. In this regard, Konecni (1979:378) says “stipulation is a type of definition which indicates that the term being defined has its particular meaning only in a given situation and it does not necessarily have the same meaning in other situations”. Sometimes a word is stipulated to convey different meanings in different branches of even the same field. For example, in Electrical Engineering, a word like ‘**counter**’ means a circuit in which a free-running oscillator of known frequency increments a numerical output at regular intervals. In General Engineering including heating, instruments, metallurgy, power metallurgy, and tools, the writer will restrict its meaning to an instrument for recording the number of operations performed by a machine. In Navigation, Space, Statistics, and Surveying, the author will use the same word ‘**counter**’ to give a description applied to a form of ship's stern, implying an overhung portion of deck, etc.

Therefore, the writer in stipulation draws the reader's attention to a certain field in which a word is presented. This provides him/her with an initial contextual clue about a word being familiarized and then by means of close inspection of other clues they can work out meaning. Stipulation familiarisation is signalled by using phrases like *“in physics, X means....”* or *“the physicist sees that the meaning of X is.....”*.

Illustration is a non-verbal means of familiarisation. It can be expressed by means of pictures, diagrams, Roman Letters etc. It is commonly used in scientific texts because such texts involve many complicated scientific notions and concepts that will be better illustrated by means of diagrams or drawings than in wording them; e .g. electrical circuits.

Result and Analysis of the Study Tools

Teachers- Based Tools

The teachers' responses to the questionnaire and the class observation indicated to these outcomes: the teachers find difficulty in teaching ESP materials due to the lexical complexity of some very scientific and technical texts included the units being taught, and this is advocated by Prichard and Nasr (2004: 426). Also, the teachers' lack of the texts background knowledge adds further barrier to the teaching process and thus puts them in critical situations with their students, who are always more knowledgeable about the text topics due to their previous education, and this is referred to by Carrell (1983: 83) Furthermore, reading and listening were the most difficult language skills being taught in ESP classes as cited by the teachers, and this enhances the former variable that concerns the lexical complicity of the scientific and technical texts.

In relation to the communication between the teachers and their students in ESP classes, the responses referred to the lack of effective communicative situations due to the teacher-based teaching strategies that cast the full burden on the teacher in the teaching process without any help from the side of students as far as the technical and scientific background knowledge is concerned, and this issue is discussed and treated by Prichard and Nasr (2004). However, this could be due to the Arab cultural aspects that consider the teacher as an information provider in the class as well as the appreciation given to those who are quite and talk less in the class. Therefore, the efficient teachers should include the students in ESP classes by addressing some simple questions about the topics of text in order to activate their likely background knowledge and, then function this scaffolding help to create successful communicative teaching situations, and this is applied successfully among engineering students in Egypt by Nasr (2002:10).

With regard to the students' performance in ESP courses over the last four semesters, the teachers referred to a very low performance, and this aligned with the continuous complains of the subject- matter teachers about the students' low level in English language and their inability to use English as a medium of instruction. This verifies the ineffectiveness of the current ESP teaching methods among Jazan University students and may generate a fruitful academic research.

Students- Based Tools

In the result of a questionnaire among Jazan University students in scientific and engineering domains (Subject No. 67) aligned with the teachers' views. Students expressed their

dissatisfaction with their ESP teachers. Also, they considered reading and writing as the most important language skills, and this goes with the main objectives of the Intensive English Language Programs (IELP) being conducted in the University Foundation Year (UFY). Nevertheless, they expressed a strong motivation to learn English and maximize the benefits of ESP classes. Also, there was no indication about the effective communication between the students and their teacher in ESP classes. It was due to the fact that, they expect to learn all text details via their language teacher, and this is very challenging in the teaching process; the teacher often stumbles at specialized scientific information stated in the text, his background education was not in the scientific domains and he cannot cope with all different specializations, as s/he is subject to different branches of ESP such as English for Science, English for Business Administration, English for Medicine, English for Tourism, and so on. In relation to the ESP courses, the students expressed their negative attitudes in spite of the strong motivation towards learning English language. This could be due to the inefficiency demonstrated by the teachers in the ESP classes; they cannot fulfill the courses objectives set by the university regulations and instructions. Therefore, the teachers should change the teaching methods and strategies so that the students can develop their academic study skills and this in turn will reflect positively on learning their specialist disciplines.

Regarding the vocabulary difficulty, the students considered the semi-technical words as the most difficult, and this enhances the importance of understanding the words contexts; guessing meaning from context is an important vocabulary recognition strategy (Nasr, 1994). Therefore, it is the role of the teacher to draw the students' attention to the situational descriptions of the text topics, and this will determine the most appropriate meaning to unfamiliar lexical items. In other words, the context elements help the students to guess meaning from context.

Conclusion

The current study has dealt with a very crucial problem the ESP learners and teachers encounter. It is due to the specialized vocabulary included in scientific and technical texts they have to deal when leaning or teaching ESP materials. The study problem is triangular, as it has three elements: the teacher, student, and book or English language materials. The first element lacks the background knowledge about the scientific English texts due to their prior education which is mainly in humanity disciplines. This hinders the teachers' skills in practicing vocabulary

recognition strategies to work out the meaning of unfamiliar lexical items that are often in specialist domains; for example he/she cannot precisely guess meaning of difficult words without prior knowledge about the context in which these words are appeared. In this situation, teachers have to make use of students' background knowledge and construct effective teaching in ESP classes. Also, it is the turn of ESP teachers to activate and generate students' schemata about some scientific topics by addressing simple questions. The second element of the problem pertains to students who have low levels skills in English and negatives attitudes towards English. The students' problem goes back to pre-university stage; they used to read at word level and look up difficult words in bilingual dictionaries. Therefore, they should make use of their potential content information and cooperate with their teacher to create successful teaching and learning situations. Furthermore, they should depend on textual clues to deal with unfamiliar lexical items rather than looking them up in dictionaries and this will be more effective in ESP classes. The third element of the ESP problem is linked with the English language courses being taught prior to ESP courses. In other words, the prerequisite is not devoted well to prepare students to the type of English they need at the tertiary level.

Therefore, English materials in level one in the UFY should be reconsidered in order to achieve the objectives of the IELP and develop students' language skills. Further, ESP materials should be undertaken by highly qualified ESP teachers so that they can achieve the target objectives. That is to say, I strongly support the notion of conducting training sessions for the current teachers, particularly those who will be engaged in teaching level two ESP materials. It is true that most of English language teachers are highly qualified academically and professionally, but they may lack the professional technicalities of teaching such new English materials. More importantly, in an ESP class, the teacher should focus on the expression rather than the content when dealing with technical texts; i.e. s/he emphasizes on the linguistic features of these texts, as it is main concern of ESP settings, and this is advocated by Prichard and Nasr (2004) That is to say, students are supposed to study the morphological and grammatical structures of English sentences and use technical lexical items in academic situations verbally and nonverbally. For example, students should be able to recognize the lexical and syntactical parts of sentences and how to reword them in several structures. Examples from Nucleus Book – General Science: '*A protractor is shaped like a semi-circle*' and '*A chess-board is shaped like a square*'. These

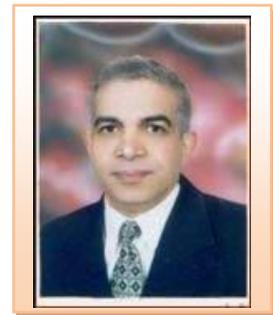
sentences could be restructured like '*A protractor is semi-circular in shape*' and '*A chess-board is square in shape*'. This should be clear to students to avoid the negative effects of Arab cultural aspects as far as the role of teachers is concerned.

References

- AFFERBACH, P. "The Influence of Prior Knowledge on Expert Readers' Main Idea Construction Strategies." *Reading Research Quarterly* Vol. 25, No.1, 1990: 31-46.
- CARRELL, P. "Content and Formal Schemata in ESL Reading." *TESOL Quarterly*, Vol.21, No.3, 1987: 461-476.
- DUDLEY-EVANS, T. and MAGGIE, J. *Developments in English for Specific Purposes: A Multi-Disciplinary Approach*. Cambridge: Cambridge University Press, 1998.
- HUTCHINSON, T. and WATER, A. "How Communicative is ESP?" *English Language Teaching Journal*, Vol.38, No.2, 1984:108-113.
- HUSSIEN, H. *A Proposed Program for Developing Reading Skills Among Technology-of-Education Students at the Faculty of Specific Education*. Unpublished PhD Thesis. Faculty of Education: University of Tanta, 1999.
- McDONOUGH, J. *ESP in Perspective: A Practical Guide*. London: Collins Educational, 1984.
- NASR, A., *The Role of Lexical Familiarization in Understanding Specialist Texts*. Unpublished MA Thesis. CELTE, University of Warwick, 1994.
- NASR, A., *Reading Improvement Program among Engineering Tarinees in Egypt*. Unpublished PhD Thesis. University of Ulster, 2002.
- PRITCHARD, R. and NASR A., "Improving Reading Performance among Egyptian Engineering Students: Principles and Practice" *English for Specific Purposes*, Vol.23, 2004:425-445.

Appendices:

- 1- Students' Questionnaire
- 2- ESP Teachers' Questionnaire



The Researcher

Atef Nasr has been employed at the University of Suez Canal, and now he is working as an assistant professor of ELT/ESP at Jazan University – Saudi Arabia. He is mainly interested in ESP areas; he has worked in the domains of business, management, engineering, science, and medicine at the University of Zagazig – Egypt. Also, he has worked in different Middle East countries: Egypt, Kuwait, Bahrain, and Saudi Arabia. His permanent work is at the Suez Canal University – Egypt.