FOSTERING COMMUNICATION AND LANGUAGE COMPETENCE IN DENTAL MEDICINE

Ilina Doykova

Medical University – Varna, Bulgaria <u>ilina.doykova@mu-varna.bg</u>

Abstract: The success of professional communication nowadays depends on the unambiguous use of lexis. The present survey integrates the lexical approach and the corpus-based analysis to foster the professional use of lexis and communication competence through exposure to authentic texts and language practice. The aim of the paper is to extract and compile a collection of useful lexical patterns and collocations for students of English in the field of dental medicine and to facilitate the acquisition of these formulaic sequences in specialized contexts.

This quantitative research investigates the specific pairings of form and meaning with a terminological potential in professional English, reveals the complexity of their valency properties and the difficulties these structures pose at an upper-intermediate level of language use.

The focus is on prototypical collocations in specialized texts for dental medicine. Verb, noun and adjective patterns as sequences formed by at least two lexical units where the base and the collocate are combined in a restricted manner to form a compositional meaning are investigated in a small corpus of research articles and textbook texts. The modification and complementation types resulting from the valency properties of the head words are illustrated with concordance sentences. The function, usage and contextual limitations of these repetitive patterns are incorporated into learning tasks. Reading comprehension tasks, use of phraseological units and fixed expressions, speaking and writing activities are suggested as supplementary materials to the current English module at the Medical University of Varna. Besides common verbs such as *use, make, cause* topical vocabulary in the domain of dental medicine necessitates knowledge of specific high frequency verbs, describing tooth disorders, dental procedures and oral prophylaxis; nouns functioning as attributive adjectives and a variety of prepositional phrases on clinical issues. These resources, developing profession-specific and appropriate clinical vocabulary at university level would also be available for self-study. The ultimate goal is to optimize and upgrade the range of specialized vocabulary in English for Dental Medicine as well as to give the students the freedom to approach the core head words from a different perspective – in word partnerships. Thus, when writing or speaking students may rely on ready-made sequences with incorporated grammar for an improved language performance.

Keywords: dental medicine, lexical patterns, collocations, language practice

1. INTRODUCTION

Nowadays dentists work with international patients and practice abroad and need to be competent in English to establish professional doctor-patient communication. Dentists use certain vocabulary to discuss dental procedures, explain treatment and prognosis, give professional advice, express concern and reassurance, maintain records, take dental history, etc. Hence, the field of Dental Medicine (DM) as other health-related professions is procedural and requires appropriate language and specific clinical vocabulary to be effective. Dentists abroad need to sit for an academic IELTS exam with a score of minimum 7.0 or Occupational English Test (OET) for some countries which highlights the value of good communication skills.

In Bulgaria today, the most frequent situation in private dental clinics is when neither dentists nor the international patients are native speakers of English. Dentists are not dependent on interpreters but rather on their own English language competence and specific vocabulary, acquired at university. This fact reinforces the need to provide specific training in communication skills, to master certain language functions and discourse scenarios.

Developing learners' lexical competence through vocabulary instruction is a priority for second language teachers. Thus, this paper will focus on the importance of specific vocabulary in DM and how to teach such vocabulary to students at an upper-intermediate level of English (Levels B2 and above as per the CEFR). Pattern identification and collocational competence tend to be problematic and error-generating areas for second language learners (Schmitt 2004). Several techniques and corpus-based activities which facilitate the process of vocabulary learning are suggested (Doykova 2016, 2017). The instruction model includes task-based and content-based learning as a tool for acquiring specialized knowledge and collocational competence in professional discourse. By implementing corpus linguistic tools in teaching materials design, an authentic learning environment is guaranteed and students are stimulated for further independent learning.

2. METHODOLOGY

Part of the meaning of a word is the fact that it collocates with other words. Lexical units possess valency properties and one or more slots around the head word are filled with obligatory, optional or contextually optional elements to create a certain structure (Herbst *et al.* 2004). The patterns of a word are identified by listing all possible complements which can be single lexical units, phrases or clauses respectively. Thus, separate lexical heads may have valency complements that vary from zero (or general use with no complements) to a maximum number (mono-, di-, tri-, tetra-valent carriers).

In professional discourse, there is a great deal of recurrent phraseology of crucial importance for the accurate, appropriate, and fluent use in work-related settings. Multi-word lexical items that have a single meaning or function are labeled with the term 'formulaic language' to encompass such categories as idioms, collocations, phrasal verbs, lexical phrases and phrasal expressions (Schmitt 2010). These conventionalized expressions are important components of language acquisition because when memorized as units they offer quick and easy processing and improved language performance (Li, Schmitt 2009).

The identification of significant patterns and collocations is performed with WordSmith Tool (Scott 2012) in a corpus of research articles and open access resources from *PubMed* and *Scripta Scientifica Medicinae Dentalis*. The lexical units are considered meaningful on the basis of their frequency of occurrence (Martinez 2013). The WordSmith functions used for their identification are Key words in context, Collocations and Patterns. The purpose is to familiarize the students with the recurrent two- and three-place predicates and their combinatory behavior in context. Thus, the teacher concentrates on the process of identifying the pattern heads and their inclusion in specific language tasks.

Technical terms as monosemous lexemes with straightforward definitions are easy to learn compared to polysemous adjectives, nouns or verbs and the variety of the patterns they exhibit when accompanied by prepositions. Recently, lexical and grammatical collocations have come out of the periphery of the linguists' interest (Štefić *et. al* 2010, Takač, Miščin 2013). The formation of inappropriate patterns and collocations is a problem that may be improved by focused instruction of high frequency words, including these two categories (Boers, Lindstromberg 2012).

3. RESULTS

Adjectives often provide clarity being an attribute of a noun or by predicating a characterizing quality. Adjectives, however, can be quite ambiguous and problematic as they do not correspond to objects, being states or qualities. As the examples below demonstrate the attributive adjective use is not obligatory when compared to the predicative one:

Attributive and predicative adjectives in research articles, published in English (*Scripta Scientifica Medicinae Dentalis)*:

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1. The treatment of jaw cysts *is operative*.
2. The role of *simple* carbohydrates as a *major etiological* factor for the *carious* process *is well known.*
3. The pH reduction *was most significant* at the 15th minute, and the *average* drop for the three *homeopathic* medications was - 0.68, 0.94, 1.07, respectively.
4. The *modified tongue* coating index *is easily accessible* and *applicable* in *common dental* practices.

5. Homeopathy *is well-accepted* by patients as medications *are easily available* (over the counter) and are prescribed for *acute and chronic* conditions.

Core propositions such as '*The reduction was significant'* require further explanation to specify the meaning. Structures that contain extensions (prepositional phrases which modify the predicate and describe in what way/under which condition the proposition is true) are extremely frequent in DM. Therefore, predicative adjectives as complex predicates with certain complementation patterns are included in the present survey. The prepositional complements explicitly introduce a new component thus specifying the originally rather general meaning of the predicative construction [*be + adjective*]. The following patterns with complex valency properties as part of the obligatory DM lexicon were identified:

I. Predicative adjectives with prepositional complements or pattern type [Adj] + [PP] where the complement is introduced by various prepositions (*to, in, at, for, on, as, about, from, over, with,* etc.):
Concordance samples of adjective heads, *Scripta Scientifica Medicinae Dentalis*:

6. As soon as the unit *is ready for* testing it beeps.

7. The increase in the values of bad breath *is relatively uniform with* the increase in age.

8. It provides clear images of highly contrasted structures and it *is extremely useful for* evaluating bone.

II. Predicative adjectives with non- finite clause complement or pattern type [it] + [Adj] + [to INF]:

9. Therefore, it *is necessary* to use it as early as the first screening and later on in monitoring the progression of the disease and the consequences of its treatment.

10. However, there will always be children whose needs *are too great* or who *are too young to* accept treatment in the dental chair.

11. In theory, many of the material-additive manufacturing technologies *are suitable to* be used for the creation of dental constructions.

Patterns 1. and 2. are the most repeated types of complementation, introducing processes. The next pattern is an example of extraposition, used to highlight importance in research findings:

III. Predicative adjectives with a finite clause complement or pattern type [Adj] + [that-CL]:

12. *It is noteworthy that* we reported higher index values in women with value 3 twice more common in women; and women with value 2 were also more than men – 34 versus 20 percent.

IV. Predicative adjectives with a subordinate clause complement or pattern type [Adj] + [wh-CL] is the rarest type in DM corpus:

13. This feature *is particularly significant when* it comes to the complex shapes of the implant.

These predicative adjectives are main verb substitutes with extensions, introducing various dimensions in the discipline-specific domain where the supporting verb has a bleached semantic meaning.

As a next step, sequences formed by at least two lexical units of the type [V] + [N] which contain the verb and its complement (a NP, an AdjP or an AdvP) were extracted. The base and the collocate are combined in a restricted manner with a compositional meaning and the [NP], [AdjP] complements or clauses such as [to-INF], [wh-CL] and [that-CL] participate as part of the terminological unit. The collocational behavior of the frequent verbs of movement (*enable, deliver, diminish, impair, limit, minimize, reduce, deteriorate, improve, increase, enhance, foster, strengthen, flex, floss, whiten, fix, discard),* verbs for dental procedures (*examine, retract, detect, measure, remove, clean, extract, reconstruct, eliminate, scrape),* and their collocations (*receive treatment, cause caries, assess structures, take dental history, restore teeth, relieve pain, apply dentures, maintain hygiene, make an impression, reduce anxiety*, etc.) are illustrated in concordance sentences:

V. Pattern type [V] + [N]:

14. A geminated tooth in anterior region may blemish aesthetics but the groove can also *cause caries* and a high plaque accumulation.

15. They may also *reduce anxiety* through a possible placebo effect.

16. The use of preformed steel crowns *to restore teeth* with microdontia has encountered some difficulties especially in lower first primary molar.

17. We tried two other techniques *to eliminate debris*: sucrose gradient and myelin depletion.

18. Whatever the cause, the ability *to make impressions* and jaw records becomes taxing.

These patterns were included in teaching materials and discourse samples to dynamically introduce specific vocabulary in authentic contexts.

4. TYPES OF VOCABULARY TASKS
The vocabulary-building resources for memorization of key words and their collocates for DM students at an upper-intermediate level of English language competence include:

- Cloze tests with focus on specific lexical items in selected professional topics by restoring texts. Rational deletion tasks (Horwitz 2008) test the learner ability of making inferences based on co-reference and collocation [sample 1];
- Short writing tasks with transitions (use of linking words and phrases) or collocations to foster coherent and connected discourse. Handouts with featured words are provided [sample 2];
- Discourse samples appropriate to the course content [sample 3];
- Describing procedures and techniques, comparing and contrasting [sample 4];
- Editing and translation tasks (Brown 2004): paragraphs with intentionally inserted errors, corresponding to learner recurrent malpractices or translation equivalents [samples 5];
- Dental treatment scenarios [sample 6];
- Note-taking and summarizing documents as text interpretation [sample 7];
- Short videos covering topics such as oral prophylaxis, common procedures and operative instruments [sample 8].

Sample 1. Reading comprehension: "The Promise of Growing New Teeth"

> *invasive, preserves, inflammation, age-related, irritation, scaffold, form, harvested, repair, treatment, concentrations, replacement*
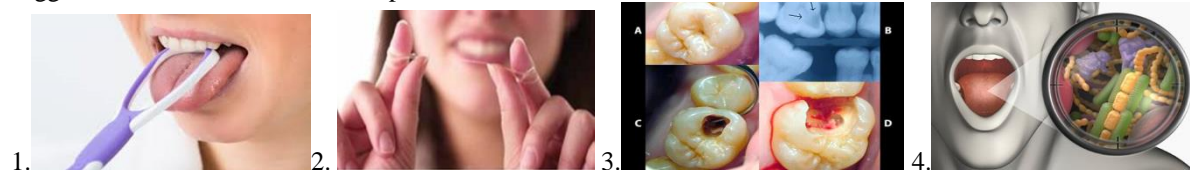
Health issues **0. associated** with dental implants include infection at the implant site, injury or damage to the surrounding structures, nerve damage, and sinus problems. Despite being the preferred **1. ……………………** for missing teeth today, dental implants can fail and have no ability to "remodel" with surrounding jaw bone, which undergoes necessary and inevitable changes throughout a person's life. Dentures can be uncomfortable and make eating difficult. Also, they can cause gum and mouth **2. …………………..** or infections. By growing a new tooth in the location where one lost a tooth, all issues associated with implants or dentures are gone…..

Sample 2. Use the phrase which fits best: "How can diet affect dental diseases?"

> **susceptibility of, development of, loss of, presence of, influenced by**, **susceptible to, result in, lead to, deficiencies of**

Bacterial fermentation of dietary sugars in the mouth 1. **is responsible for** the 2. _____ minerals from the teeth that can 3. _____ the formation of caries. While the 4. _____ caries requires the 5. _____ both sugars and bacteria, it is also 6. _____ the 7. _____ the tooth, the type of bacteria, and the quantity and quality of the saliva. 8. _____ vitamins D and A have been shown to affect the natural development of the teeth, which can make them more 9. _____ decay. Severe vitamin C deficiency can 10. _____ inflammation of the gums, the most important factor in preventing periodontal disease is good oral hygiene.

Sample 3. Speaking activity: Give recommendations to your patient on how to maintain good oral hygiene. Use the suggested sentence models and the pictures:

1.   2.   3.   4.

We need to _____ a cap on your tooth. This is to replace the broken part.
You should _____ with mouthwash. This will help stop plaque and halitosis.
It is a good idea to _____ after meals to remove food from between your teeth.
I'm afraid that in your upper jaw on both sides you _____ some cavities and you
_____ some temporary fillings.

Sample 4. Write a solution to the tooth problem or disease in the pictures below.

> 1. braces 2. dentures   3. whitening   4. dental erosion 5. root canal treatment

Problems: Solutions:

4. Dental erosion (tooth wear)		Tooth wear is a progressive loss of hard dental tissues due to the processes of abrasion and erosion which may lead to tooth destruction. You need to avoid the consumption of …. and exposure to …
5. Root canal treatment		Decayed tooth should not be left unattended. When the nerve of your tooth is badly decayed, you need …

Sample 5. Complete the collocations and their translation equivalents:

go on a balanced………….. a sensible	a …………	of treatment of antibiotics of physiotherapy
infectious contagious ………….. communicable	to …………	dental practice resistance strength

Sample 6. Dental Treatment scenarios: http://www.webmd.com/a-to-z-guides/abscess#1

Patient 2: You have been feeling severe pain in the lower left part of your mouth. Eating on that side is painful.
Dentist 2: The patient has an abscess. Suggest treatment. Explain possible reasons for the abscess.

Sample 7. Another family with "The Habsburg Jaw" <http://jmg.bmj.com/>

Sample 8. Short videos: https://www.youtube.com/watch?v=QvDw6m2kA6Q
                            https://www.youtube.com/watch?v=621E6KyWIGA

5. CONCLUSIONS
Fostering language competence of patterns and collocations in DM involves a range of activities that rely on reading, listening, writing and speaking tasks. In the teaching process at MU-Varna, priority is given to [Adj]+[N] and [NP] collocations. This paper expands the horizon on domain specific lexical units that are more difficult to be acquired and retained such as predicative adjectives and verbs. Due to the insufficient classroom time and the limited number of specially designed tasks, students are not well equipped for their professional and academic careers. Preparing teaching materials based on the idea of patterns and collocations is a strategy to stimulate vocabulary development for an improved language performance.

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