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Basic Methodology Guidelines: CLIL Approach in Dentistry at Tertiary Level

Ieva Henkuzena

Indra Karapetjana

Gunta Roziņa

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Introduction

One of the main drivers of university globalisation has been the Bologna process, an approach to the internationalisation of higher education systems. Four key priorities for the future were identified in 2015 (Online 1): 1) enhancing the quality and relevance of learning and teaching; 2) fostering the employability of graduates throughout their working lives; 3) making our systems more inclusive; and 4) implementing agreed structural reforms.

The Bologna process has stimulated universities in member countries to build up contacts worldwide, which, in turn, has resulted in an increasing use of English for communication between universities. Although the Bologna process does not regulate the use of English in higher education, this has been encouraged, as the knowledge of English makes it easier for students and academic staff to take part in various exchange programmes.

Internationalization and globalization are also the imperatives largely impelling higher education establishments to diversify their educational offer and increase the provision of educational instruction in English in order to facilitate the recruitment of international students, boost institutional prestige and enhance international employability for domestic students.

More and more degree programmes and courses taught through the medium of the English language in countries where English is not an official language appear. English has become the medium of instruction (EMI) in different academic subjects. In the EMI approach, the academic staff member reads the subject at his/her own English language level, which is expected to be several levels above the students' level, and provides little or no support for students' language problems. Since students' language difficulties are not attended to, the introduction of the content and language integrated learning (CLIL) approach in higher education institutions has been of vital importance.

In the CLIL approach, the academic staff member recognises students' language problems, tries to adjust his/her language to the students' language level and uses a range of strategies in order to facilitate the acquisition of the subject matter and language.

We are convinced that in order to implement any instructional approach, including the one which integrates language development with dentistry content instruction, a coherent theoretical methodological framework is necessary.

This methodology manual presents findings from the evaluation of the content and language integrated approach. The methodology described below has been developed and adapted from several theoretical frameworks, in particular, Systemic Functional Linguistics, the Lexical approach, Genre theories, as well as the authors' own professional experience. It aims at meeting the academic needs of the students acquiring dentistry in English.

The manual is intended for the educators who work with the students majoring in dentistry and who need English language skills to succeed in their academic work and professional career in dentistry.

1 Introduction to Content and Language Integrated Learning

1.1 What is CLIL? Relationship of Content and Language

CLIL has widely spread in Europe since the 1990s. It was originally defined as a pedagogical approach integrating the acquisition of a target language and an academic content simultaneously in primary and secondary education.

A CLIL class is neither a language nor a subject one transmitted in a foreign language. It is “a dual-focused educational approach” (Coyle, Hood and Marsh 2010: 1) in which the study of academic content is combined with the use and acquisition of a foreign language, attaching the same importance to each.

Although any second or foreign language can become the object of CLIL, English dominates in CLIL classes or related approaches, such as Content-Based Instruction, English across the Curriculum and others.

According to Coyle, Hood, and Marsh (2010), language is needed to express academic content, that is, to represent the basic concepts and skills important for any academic subject [*language of learning*], to operate in the foreign language classroom in order to be able to carry out tasks and activities [*language for learning*], as well as language is needed to support and advance learners’ thinking processes while acquiring new knowledge, as well as to facilitate their language learning [*language through learning*].

The conceptual framework of CLIL (Coyle 2005; revisited Coyle, Holmes, King, 2008) determines four dimensions underlying the 4Cs curriculum: content, communication, cognition, and culture.

Content is understood as the academic subject matter, that is, knowledge, skills and competences related to specific elements of a particular curriculum. This defines the aim, objectives, learning outcomes of the syllabus, which, in its turn, affects the choice of genres to be used in the class.

Communication deals with foreign language learning and use. This affects the choice of language, that is, vocabulary, grammar, and collocations to be used in tasks and activities aimed at communication in the class.

Cognition implies developing learners' thinking skills, constructing their own understanding and developing foreign language skills with the help of tasks which engage learners in higher order thinking skills, through accepting challenges, reflecting on them, and problem solving.

Jim Cummins' framework (1984) (see Figure 1 below) suggests that language proficiency can be conceptualized along two continuums. The horizontal continuum, from context-embedded to context-reduced, relates to the availability of context for communicating meaning. The context-embedded situation promotes active negotiation of meaning, in which language is supported by different face-to-face cues, gestures, facial expressions, and concrete objects of reference. The context-reduced situation does not support active negotiation of meaning, as it relies only on linguistic cues. The vertical continuum relates to the degree of cognitive involvement, ranging from cognitively undemanding (including, simple language, familiar topics) to cognitively demanding (including, technical vocabulary, complex language structures, abstract concepts, new ideas) in the activity.

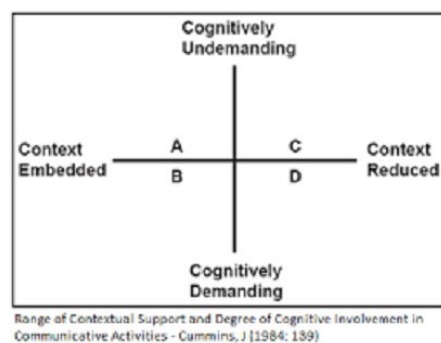


Figure 1 Framework to classify language activities (Cummins, J. 1984)

The language used in the area of dentistry to impart new and complicated information is cognitively demanding. Relating Cummins' framework to dentistry and English language learning, it can be argued that the cognitive complexity of the information and the tasks for which the English language is used in dentistry affect comprehension. The academic language involves using the language functions or the tasks that the students must be able to perform in dentistry and when learning about

dentistry, for instance, such functions as identifying and describing information, explaining a process, evaluating knowledge and others.

If cognitively demanding and context reduced content like dentistry needs to be presented, the cognitive challenge should be eased by creating a context through hands-on learning, taking students' experience as a starting point, using visuals, and the language should be eased by scaffolding students' performance through breaking up tasks into manageable sub-tasks, focusing students' attention on relevant aspects and performing other scaffolding activities (Halbach, 2012:39).

The element of culture characterizes an institution, an organization, or a group, and it is related to the exposure to alternative perspectives and shared understandings, which deepen awareness of otherness and self. Culture usually has 11 aspects that organize information: food, clothing, recreation, government, education, language, religion, transportation, economy, environment, and arts (Coyle, Hood, Marsh, 2010). Learners develop intercultural awareness, knowledge, and intercultural communication skills.

1.2 CLIL in Higher Education

In the context of a globalized labour market and within the framework of the Bologna process, the key goal of the European Higher Education Area has been internationalisation of higher education. This has affected the boundary between content and language in higher education, and although the term Integrated Content and Language Learning in Higher Education has appeared and received due currency, the present methodology guide uses CLIL as its guiding methodology.

As it has already been mentioned, an increasing number of degree programmes are either offered in a foreign language, or contain modules and courses taught in a foreign language, most often in English. Language for specific purposes (LSP) or language for academic purposes (LAP) courses are more common at universities than fully integrated approaches. In LSP or LAP courses, the language instructor's main task is to develop students' language skills so that they could use them efficiently in the academic context and professional context after graduation. To achieve this, the instructors use the materials and tasks that their students are assigned in the content courses. The collaboration between the language and content instructors is quite rare.

CLIL is on the higher education agenda, as the CLIL-type approaches are becoming adopted in the European Higher Education area in different domains: business, law, humanities, medicine, and engineering. English has been chosen as a medium of instruction in the CLIL courses and programmes due to its sociolinguistic status of the international language of academic studies, research and professions.

In this manual, we draw on the research conducted in European CLIL contexts, for example on the work done by Räsänen, A. (1999). Table 1 below outlines the existing types of CLIL.

Table 1 adapted from Räsänen, A. (1999)

| TYPE | PARTIAL CLIL LSP/Discipline-based LT | PARTIAL CLIL (language – LAP focus) | PARTIAL CLIL (content – focus in L2) | ADJUNCT-CLIL | (Dual-focus) CLIL |
|-----------------------------|--|---|---|---|---|
| FEATURES | | | | | |
| Main aim(s) | Language mastery and typically also study skills (LAP) mastery; Explicit L2 aims. | Language and study skills mastery, tailored for future content learning, i.e. pre-sessional course; explicit L2 aims. | Content mastery; L2 learning incidental - language aims not specified, but often implicit L2 learning aims. | Content mastery and L2 learning; tailored, adjunct L2 instruction to support content learning outcomes; explicit L2 aims. | Content mastery and L2 learning; dual focus and integrated and specified aims for both. |
| Target group | Non-native learners | Non-native learners | Any group, both native and non-native learners | Mixed group, but L2 adjunct courses more aimed at non-native learners | Typically non-native learners |
| Main actor(s) | Language specialist | Language specialist, often in co-operation with subject specialists | Subject specialist | Subject specialist and language specialist in collaboration; i.e. two teachers | Subject specialist alone or teaming with a language specialist |
| Pedagogical approach | Language teaching and LSP approaches with an additional focus on LAP. Tailored learning tasks. | Study skills teaching and LAP approaches with an additional focus on LSP. Tailored learning tasks. | Often lecture-type, focus on transmission of knowledge, expert-centred. Approach depends on | Lecture-type or learner-centred; L2 adjunct courses constructed in collaboration between language and content specialist to promote skills needed for content | Multi-modal, interactive and learner-centred approaches which systematically support both content and L2 learning |

| TYPE | PARTIAL CLIL LSP/Discipline-based LT | PARTIAL CLIL (language – LAP focus) | PARTIAL CLIL (content – focus in L2) | ADJUNCT-CLIL | (Dual-focus) CLIL |
|-----------------------------------|--|--|--|--|---|
| | | | what is typical of the discipline or preferred by teacher. | mastery. | aims. |
| Main view of language | Language as subject and mediator. | Language as subject and mediator. | Language as tool. | Language as mediator. | Multiple views of language. |
| Learning outcomes expected | LSP competence: functional, professional language and communication competence in the disciplinary field and in general. LAP competence for the purposes of the discipline. | LAP competence for the purposes of the discipline. LSP competence: functional, professional language and communication competence in the disciplinary field and in general. | As in content instruction. Language learning dependent on the pedagogical approach and on learner's own motivation, initiative and autonomy. Lack of awareness of the role of language is typical. | As in content instruction, but with a clear awareness of the role of language, i.e. partially integrated content and language competence. Focus of L2 adjunct instruction is on production and interactive skills. | Integrated content and language competence. Both developed systematically through tailored learning tasks; main emphasis in L2 development is on production and interactive skills. Full awareness of language. |
| Assessment | Language and communication skills assessment forms according to set criteria. | Language and communication skills assessment forms according to LAP criteria. | Content mastery assessed in whatever way is typical; language learning not assessed apart from possible self-assessment. | Each teacher assesses his/her share; often joint assessment criteria and multiple forms; credits given for both. | Assessment of content and language according to aims set; often continuous and multiple forms of assessment. |

As it can be seen from Table 1 above, a variety of practices can be found under the term CLIL. In Latvia, the most widespread type is the Partial CLIL, that is, English

for Specific Purposes or discipline based language teaching. Also, Partial CLIL, that is, teaching the English language for academic purposes exists. More and more partial CLIL courses (or English as a medium of instruction) are offered with the core aim of delivering the content by a subject specialist, with no attention paid to the language teaching. Interestingly, in some institutions these courses are offered by language specialists, some of them having acquired a master's degree in the subject they are teaching.

LanQua toolkit: Frame of Reference for quality in languages in higher education (Online 2) describes the necessary competences a student must develop having completed a higher education programme (first or second cycle) in a CLIL context:

- multilingual competence in the field-specific and professional domain to include knowledge and understanding of how information is managed, conceptualised, and communicated in the target languages/L2s in the field-specific academic and professional domain and the role of research in contributing to the body of knowledge in the field;
- understanding of the national and international dimension of the professions in the field, including cultural differences and their own cultural, academic and professional presuppositions and representations, not least how these are manifested in the target languages/L2s;
- knowledge and understanding of how multilingual and multicultural professional teams, networks and communities operate in both face-to-face and virtual contexts and which interpersonal and intercultural skills, linguistic and non-linguistic, are required;
- awareness, knowledge and understanding of communication conventions in the field and profession in the target languages/L2s, e.g. genre, discourse and register conventions, as well as sensitivity to appropriate language use in academic, professional and social contexts;
- understanding of the importance of continuously developing one's own professional expertise through multilingual and multicultural sources and experiences, including ICT-enhanced environments. (Online 2)

As a result, students are expected to be able to demonstrate the capacity for:

- receptive and productive skills necessary to access, process and critically evaluate information in the field of study, to share information, and to identify, analyse and solve problems in multiprofessional settings of the field;
- mediation between languages and cultures in social and in professional settings, including effective translanguaging (code-switching, intercomprehension strategies, mediation), intercultural awareness and negotiation of meaning needed in domain-specific professional multilingual and multicultural environments (multiliteracy);

- professional and interpersonal communication in the target languages/L2s in order to function and interact in specific and interdisciplinary contexts, teams, networks and communities, as well as in social contexts;
- using oral and written communication in target languages/L2s appropriately in the specific academic field and in professional and social contexts, including communicating their expertise to different audiences;
- awareness and ability to apply appropriate metacognitive skills and strategies needed for self-directed and integrated content and language learning on a lifelong basis. (Online 2)

1.3 Dentistry Teaching in English – Meaning Making and Construction of Knowledge

The 21st century sees a strong need in the applicability of competences and skills gained through higher educational institution (HEI) curricula in the field-specific and professional domain, and the English language has become an intangible asset for professionals to operate internationally in both face-to-face and virtual contexts. It is an instrument of speciality-bound professional and interpersonal communication in the domain of dentistry, too, which enhances the marketability of the relevant professional competence across borders.

The methodology described is based on the conviction that language learning is a social process, aimed at helping to attend to language features essential for the construction of knowledge in the classroom proactively. This is achieved through highlighting core language used in the field, making this language available and accessible to students and designing learning activities by sequencing the kinds of genres students need to use and aspects of register they need to express dentistry knowledge in academic and professional contexts.

Previous research has emphasized the importance of lexis acquisition in CLIL classes, that is, the productive knowledge of the most frequent vocabulary items, key vocabulary in the relevant subject area and academic vocabulary needed to function in the academic setting (Eldridge et al. 2010: 89).

The term *transversal skills* has gained importance in HEIs in Europe. While there is broad agreement that today's students need different skills to be prepared for the labour market, there is still a great deal of discussion about the transversal skills: what these skills are, what the most important ones are, and how such skills should be taught.

In addition to the fact that there is no clear agreement on what skills in particular constitute transversal skills, a number of related terms such as applied skills, cross-curricular skills, cross-disciplinary skills, interdisciplinary skills, 21st century skills, and soft skills exist. These terms may not be strictly synonymous, and they may have specialized meanings in certain contexts. It should be noted that this manual use the terms transversal skills and soft skills interchangeably.

The term *transversal skills* refers to a set of knowledge and skills that are believed to be critically important to success in today's world, in higher education and contemporary workplaces. (Online 3) The European Commission in its classification of European Skills, Competences, Qualifications and Occupations argues that "Transversal skills and competences are relevant to a broad range of occupations and sectors." (Online 2) Thus, these are the skills that can be used in similar occupations and can be transferred from one occupation to another, enabling occupational mobility.

Transversal skills can be applied in all academic disciplines and subjects, and they are like the building blocks for the enhancement of the hard skills required in the labour market. Hard skills relate to specific technical abilities or factual knowledge required to do a particular job, while soft skills can be defined as interpersonal, human, people or behavioural skills, which are needed in order to apply the hard skills in the workplace (Rainsbury, Hodges, Burchell & Lay, 2002). Muzio, Fisher, Thomas and Peters (2007) claim that soft skills are micro social skills and can be divided into 1) intrapersonal and interpersonal skills; 2) personal and social skills; and 3) cognitive skills.

In the context of the present work, such soft or transversal skills as patient management skills, language skills, interpersonal communication skills, and digital skills are considered to be of paramount importance to dentists.

In order to bridge the gap between the higher education offer and the skill demand in dentistry required by the current labour market, a survey (Zaura' E., et.al. Henkuzena, I., Karapetjana, I., Ribreiro, S., Rozina, G., Tavares, C., 2016) as part of this Erasmus project was administered in the period from 4 March 2016 to 17 March, 2016 in the

Netherlands, Latvia and Portugal. The results obtained allow us to draw the following conclusions.

As concerns acquiring the dentistry competences in English, the survey demonstrated that a considerable number of respondents were not completely satisfied with their language skills to understand and apply the professional values and standards described in the administrative processes and requirements for clinical audits in practice. Their linguistic competence required to evaluate critically information published in general and clinical scientific research papers or journals in particular should be increased considerably. Besides, the respondents' skills to obtain and record comprehensive medical history of patients' oral and dental state need further advancement. The respondents saw the need in developing their abilities to communicate professionally with patients of different social and ethnic backgrounds and with their families to identify patients' individual expectations and/or needs; the skill to manage the patients' stress and the skill to communicate in English with other health professionals involved in patients' care should be promoted as well. The respondents' English language competences to explain clinical findings, to describe impairments of function as a result of a tooth loss, to clarify risks and benefits of dental materials and to explain treatment options or plans to patients of different age groups have to be advanced; this way the patients' awareness of the prevention of developing oral diseases can be enhanced. This survey demonstrated the lack of experience with a VLE in a considerable part of the target population.

A number of recommendations result from these conclusions:

1. In order to promote a relatively recent introduction of a VLE in undergraduate dentistry study programmes, the study materials are to be developed so that they enhance the language users' confident communication in the area of dentistry. This will enable them to deal with unanticipated situations through a variety of specialist-area related issues effectively: across a VLE, this can be achieved via an efficient application of:

- student-to-student and student-to-teacher interaction,
- online quizzes with feedback offered,
- use of video material which considers patients' consent and confidentiality issues,

- web information and/or loading reference texts, which will enhance an evidence-based approach to practice,
- imaging technology, which will familiarize the learners/language users with how to ‘read’ and/or deal with the dentistry-area related output.

2. Across a VLE and considering the requirements set for the dentistry area, learning/teaching materials should be developed so that they envisage the development and promotion of the would-be-dentists’ higher level language competence via:

- simulation of both clinical procedures and clinical scenarios,
- simulation of pre-clinical practices to develop and enhance the language users’ clinical skills,
- discussion and analysis of professional attitude, behaviour, ethics and jurisprudence issues,
- skills of analysing the basic biological, technical and clinical sciences in order to obtain and record a complete history of a patient’s medical, oral and dental state,
- decision-making, clinical reasoning and judgement skills in order to assist the patient to establish and maintain oral health and general health prevention and promotion.

3. Across a VLE and taking into account the interdisciplinary nature of the English language and the area of dentistry, the would-be dentists’ interpersonal, communication and social skills can be enhanced via developing the learning/teaching materials that focus on:

- maintaining a high degree of linguistic accuracy,
- establishing efficient interaction with a good control of language use,
- dealing with unanticipated and/or complex linguistic situations effectively,
- providing a structured discourse to deal with the profession-related point of view,
- participating in interaction in formal and informal settings on various topics either to meet the interactants’ personal needs or to address the areas of their professional and/or scholarly interests.

Thus, establishing a solid synergy between the dentistry domain and the use of the English language for instrumental purposes in the professional context can

demonstrate the usefulness and topicality of this approach selected for further development of the language resources to be used in a VLE.

English for dentistry (ED) acquired at tertiary level can be defined as the specialist language used for instrumental academic purposes that is aimed at attaining competences and skills resulting in optimum effectiveness when applied for communicative purposes in real-life communicative events in the professional domain. ED is designed to meet the specific but restricted language learners' needs and requirements. Underlying identifiable language learners' targets, it focuses on thematically-related areas that deal with specified communicative dental practices, such as providing patients with dental advice, offering treatment plans and alike.

Up to now, many contributions have revealed dental field-specific findings in a number of publications, for example, in the *Journal of Dental Education*, *European Journal of Public Health* and others. However, the linguistic features that characterize ED have been researched insufficiently not only in Latvia but also in Europe. As concerns ED, the research carried out with the focus on the instrumental application of the English language does not abound in study books and/or materials. Few contributions are known which are concerned with the study of the syntactic, semantic, morphological and lexical features of ED (e.g. Studzinska-Pasieka, et al., 2011).

The study material established by Studzinska-Pasieka et al. *Open your English Wider* (2011) can be considered as one of the latest contributions devoted to the demonstration of the English language use for dentistry purposes. It focuses on the main areas of dentistry, such as general dentistry, oral surgery, orthodontics, prosthodontics, periodontics, endodontics, oral pathology, cosmetic dentistry and demonstrates the use of syntactic and lexical properties of English in the specialist related discourse.

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2 Genre and Register in Dentistry and English Language Integrated Learning Classes

2.1 Systemic Functional Linguistics

One of the theoretical perspectives used to construct this manual is a social-semiotic meaning-based theory of language arising from Systemic functional linguistics (SFL), which aims at describing the linguistic choices available to language users to form meanings in particular contexts of use. It has proposed an analytical framework of three interrelated metafunctions of language: the *ideational*, *textual* and *interpersonal* ones (Halliday and Matthiessen, 2004). The framework can be used to understand how the English language can be used in dentistry and English language integrated learning classes and in relevant contextual situations.

The *ideational* language function pertains to what is going on in the field-specific domain or the propositional dimensions of language; the *textual* language function is concerned with the organization of a cohesive and coherent discourse, and the *interpersonal* language function refers to the interpersonal relationships of the interactants in academic, professional, and social contexts. The three components of the contextual situation *field*, *mode* and *tenor* are engaged in systematic interaction with the three language functions: *field* interacts with the *ideational*, *mode* - with the *textual*, and *tenor* with the *interpersonal* language function. *Field* refers to the subject matter, for instance, dentistry, and it is concerned with institutional practices and activities, *tenor* focuses on social relations among the interactants, and *mode* is concerned with the various spoken and written channels of communication, the role of the language in the text and the nature of the text itself (e.g. a report, a lecture) through which we carry out institutional practices and activities and enact social relations.

All three metafunctions are important. The aim of each CLIL class is the representation of content knowledge in dentistry through spoken and written modes. This involves the construction of knowledge, that is, students acquire dentistry-specific themes that are part of the course syllabus. Thus, the dominant function in CLIL classes is the *ideational* one. However, the lecturer may not be successful in maintaining the flow of information and encoding the meaning of the message and/or

the student may not be able to decode its meaning successfully. Hence, the importance of the *textual* function can be seen. The *interpersonal* language function refers to how social relationships are managed in the class.

Given adequate explanation of the situations in terms of these three components, language users should be able to choose and understand the language forms and meanings in particular situations, which create the *register* of the genre.

The understanding of the subject *register*, that is, how ideational (processes, e.g. types of verbs; participants, e.g. nouns), interpersonal (e.g. modality, attitude, clause structure) and textual meanings (e.g. information distribution, the active vs passive voice) are expressed, allows students to learn the vertical knowledge of the discipline.

Table 2.1 Register Variables and Metafunctions

| Purpose | | What are the communicative purposes of the activity? | Metafunctions |
|----------------------|-------|--|---------------|
| CONTEXT OF SITUATION | Mode | What is the channel of communication? | Textual |
| | Tenor | What are the social relationships of the interactants? | Interpersonal |
| | Field | What is the subject matter of the activity that the interactants are engaged in? | Ideational |

Classroom register can be of two types: the *regulative* and the *instructional* register (Christie, 2002). The former pertains to the role of language used to manage social relationships in the class by, for instance, giving instructions and explaining classroom procedures, while the latter refers to the role of language in constructing knowledge and skills paramount to the subject matter.

Although both registers are of use, the *instructional* register is of special importance in CLIL classes because students are engaged with meaningful subject matter content through meaningful communicative activities.

SFL sees genre as ‘a staged, goal-oriented social process. Social because we participate in genres with other people; goal-oriented because we use genres to get things done; staged because it usually takes us a few steps to reach our goals’ (Martin and Rose, 2003:7-8). SFL scholars view texts or genres as fulfilling different

functions, such as explanation (i.e. explaining why and how something occurs), procedure (i.e. enabling professional or scientific activity, such as experiments and observations, to occur), descriptive reports (i.e. describing the attributes, properties, behaviour of a single class of object) and others.

2.2 Genres and Their Functional Structuring: the ESP Perspective

The different genres through which the subject knowledge is learnt reflect the construction of knowledge in the discipline. Therefore, students need to understand and construct the disciplinary genres complying with the relevant conventions.

The disciplinary discourse community viewed as an internal community within the institution or beyond having specialized expertise in a particular field (Grabe and Kaplan, 1998:341-342) has distinct expectations regarding the use of genres.

Research has shown that the functional structuring of genres differs, as we not only use different vocabulary to perform such an activity as obtaining a patient history or documenting a patient's treatment plan, but we also go through various stages, which are recognized by their functions. Appropriate lexical and grammatical choices, which create the register of the genre, are made to achieve the goal of each stage and the communicative goal of the whole genre. Also, the order of the stages is important in the attainment of this goal in view of the conventionalized and standardized social actions. For example, the structure of case reports in medicine has become more 'uniform and conventionalized' recently (Ferguson in Paltridge and Starfield, 2013:248).

Nowadays the concept genre embraces the predictable and recurring academic, professional and other text types that are used in a range of contexts.

The English for Specific Purposes (ESP) perspective of the Genre theory sees genres as communicative events, which have 'typical schematic structures that are recognized by users of the genre' (Hyland, 2002: 16-17). The move analysis of the schematic structures of genres provides insightful information for teaching purposes of the relevant genres in the discipline. The most seminal definition of a genre has been proposed by Swales (1990: 120), which claims that a genre comprises a class of communicative events, the members of which

share some set of communicative purposes. These purposes are recognized by the expert members of the parent discourse community, and thereby constitute the rationale for the genre. This rationale shapes the schematic structure of the discourse and influences and constraints choice of content and style. If all high probability expectations are realized, the exemplar will be viewed as prototypical by the parent discourse community.

From this definition, it is obvious that an important aspect of genre analysis is a communicative event, in which two parties, that is, the writer/speaker and the reader/listener engage in communication through the text. The parties share the understanding of the communicative purpose, which helps them distinguish one genre from another. The communicative purpose is the most important factor in genre identification because any major changes in it will give a different genre, but minor changes will help identify sub-genres (Bhatia, 1998: 45). The definition above also suggests that genres have a schematic structure, and the parties of the communicative event draw on this structure for constructing and construing the genre.

Similarly, Tribble (1996) holds that a genre is a structured and conventionalized communicative event, and the members of the discourse community recognize the conventionalized internal structures of the genres, and they have a role in defining the characteristics of a particular genre. Thus, the linguistic resources used to construct a particular genre must conform to specific structural and lexico-grammatical resources of the genre.

Although genres are typically associated with recurring rhetorical contexts and are identified on the basis of a shared set of communicative purposes with constraints on allowable contributions in the use of lexico-grammatical and discoursal forms, they are not static. Language users might vary the optional generic conventions in order to achieve their communicative purposes; however, they should follow mandatory structural patterns and register features of specific genres which define their limits in order to ensure the pragmatic success of the genre in the appropriate context.

The ESP perspective proposes to use the following analytical concepts: a part-genre – a section of a full genre; a sub-genre – a sub-type of a genre; a move – a functional unit fulfilling a coherent communicative function in the genre; a step – a unit of the move (Dudley-Evans and St John, 1998). Table 2.2 summarizes the structural and lexico-grammatical analysis of genres.

Table 2.2 Lexico-grammatical and structural analysis of genres

| | |
|---|---|
| Schematic structure of the genre/sub-genre/part-genre | In what order are the ideas organized in the genre? |
| Overall generic features | What are the key moves and steps? |
| Register features | What are the lexico-grammatical features for realizing the schematic structure? |

It is obvious that knowledge in any field is represented through language. Moreover, the language embodies and creates the knowledge in the discipline. However, it must be emphasized that students' knowledge building does not take place in the same way in all the fields, as one of the major differences apart from terminology arises from various functional structuring of discourse. Thus, it is important to raise their students' awareness of the functions of the genres used in dentistry and increase their ability to use the genres.

Ferguson (in Paltridge and Starfield, 2013:247) argues that 'written medical genres include research articles, abstracts, case reports, review articles, peer reviews, letters to the editor, book reviews, and letters of referral'. For instance, the case report is a narrative which, records 'the course of a patient's disease from diagnosis through treatment to outcome usually accompanied by some professional commentary' (ibid.: 247-248).

Dentists are to perform a dietary analysis, chart a comprehensive oral hard and soft tissue examination, generate/produce an order form for dental laboratory, write protocols of infection control and alike. Thus, typical genres in dentistry are different forms, for instance, a form producing a patient record and maintaining a record of patient treatment, an informed consent form before treatment, a form for recording demographic data (see Figure 1 below), a health history form (see Appendix), an active treatment plan (see Appendix), reports, journal articles, and case reports.

Different patient referral forms are available online, for example, <https://www.dentistry.uiowa.edu/patient-care-referral-forms> [Accessed 30, June, 2016]. Dental treatment consent forms are available here: <http://www.dental32okc.com/sites/dental32okc.com/files/files/documents/New%20patient%20ppwk%208.1.14.pdf>. [Accessed 30, June, 2016].

Genres are based on external, non-linguistic criteria, that is, a communicative purpose and the intended audience. In order to achieve specific goals of the genres, their discourse is constructed in different stages recognized by their functions, which are based on internal, linguistic characteristics. Chamot and O'Malley (1974:42) outline the following academic language functions: to seek information, inform, compare, order, classify, analyse, infer, justify and persuade, solve problems, synthesize, evaluate (see Table 2.3 below).


|  SCHOOL OF DENTISTRY UNIVERSITY OF MICHIGAN | | | | | | |
|--|----------------------|---------------------|--------------------------|--------------------------------------|-----------|---------------|
| Patient Registration Information – Please Print using black or blue ink | | | | | | |
| Title | Patient's Last Name | First Name | Middle | Preferred | Gender | |
| Date of Birth | Social Security No. | Marital Status | Email Address | | | |
| Home Address | | Apt or Box No. | City | State | Zip Code | |
| Home Phone Number | Daytime Phone Number | Cell Phone Number | Preferred Contact Number | | | |
| Emergency Contact – Name | | Relation | Daytime Phone No. | Address (Street, City, State, Zip) | | |
| Race/Ethnicity (optional) Black/African American <input type="checkbox"/> American Indian/Alaska Native <input type="checkbox"/> Asian <input type="checkbox"/> Native Hawaiian/Pacific Islander <input type="checkbox"/> White <input type="checkbox"/> Hispanic / Latin / Spanish Yes <input type="checkbox"/> No <input type="checkbox"/> | | | | | | |
| Guarantor/Guardian Information | | | | | | |
| Title | Last Name | First Name | Middle | Relation | Gender | |
| Date of Birth | Social Security No. | Marital Status | | | | |
| Home Address | | Apt or Box No. | City | State | Zip Code | Email Address |
| Home Phone Number | Daytime Phone Number | Cell Phone Number | Preferred Contact Number | | | |
| Patient's Primary Dental Insurance Information | | | | | | |
| Subscriber's Name | | Subscriber's ID | Subscriber's DOB | Insurance Co. | Group No. | |
| Employer | | Address of Employer | | Subscriber's Relationship to Patient | | |
| Patient's Secondary Dental Insurance Information | | | | | | |
| Subscriber's Name | | Subscriber's ID | Subscriber's DOB | Insurance Co. | Group No. | |
| Employer | | Address of Employer | | Subscriber's Relationship to Patient | | |
| Assignment of Benefits and Release of Information <small>I authorize the University of Michigan School of Dentistry (UMSD) or the Dental Faculty Associates (DFA) to release any and all information contained in my dental/ medical records to (a) any third party payer, insurance agencies or carriers or their agents which may be responsible in whole or in part for paying any expenses associated with my treatment; (b) any health care facility or provider for the purpose of facilitation continuing care and treatment; (c) attorneys or agencies representing the UMSD or the DFA in connection with collection actions against insurers, benefit plan, or the patient, or estate; and (d) any federal or state agency as required by law. I assign and authorize direct payment of all health care benefits and other forms of payment of any kind which relate to the care provided to me at the UMSD, the DFA or its offsite clinics for application to my bill(s). I assign to the UMSD or the DFA all claims benefits or any related rights or claims I may have under the Employment Retirement Income Security Act (ERISA) or other applicable law, against any insurer, employee, trustee, fiduciary, employee welfare plan, employee benefit association, or other person who may be liable to pay charges due to the UMSD or the DFA for my care, and agree that the UMSD or the DFA may pursue any claim to these benefits, whether or not I choose to pursue that claim. I guarantee full financial responsibility for payment of all expenses associated with my care and treatment, including any portion of any charges not paid by insurance, including motor vehicle insurance, worker's compensation or social agencies and agree to pay the same at the time of delivery of service, discharge from treatment, or on any interim basis. These expenses will include but are not limited to deductibles, co-insurance, non-covered benefits services, and services requiring prior authorization which were not authorized.</small> | | | | | | |
| Signature of Patient, Parent, or Guardian | | Date | Relationship to Patient | | | |
| Witness Signature | | Date | | | | |
| Revised 6/2013 | | | | | | |

Figure 1 Form for recording demographic data (Stefanac, S.J. and Nesbit, S.P., 2015:6)

Table 2.3 Academic Language functions (Online 1)

| Academic Language Function | Student Uses Language to: | Examples | Thinking Map | Graphical Organizers |
|-----------------------------------|---|--|--------------------------|--|
| Seek information | Observe and explore; acquire information; inquire | Use who, what, when, where, and how to gather information | Circle Map | Attribution Diagram Web SQ3R Concept Map Definition Map Outline Cornell taking |
| Inform | Identify, report, or describe information | Recount information presented by teacher or text, retell a story or personal information | Circle Map Bubble Map | Web SQ3R Concept Map Definition Map Outline Cornell taking |

| ic zers | Language Structures/ Key Signal Words | Tasks Associated with Academic Language Function | Questions Commonly Asked |
|---|---|---|---|
| te n t ion s Note- | To be, action verbs, prepositions | Define, count, draw, identify, indicate, label, list, match, name, point, recall, recite, reproduce, repeat, trace, write, state, select, record, attributes, characteristics, main idea | Who ... ?, What happened?, Where did it happen?, When did it happen?, Where did you find that?, How do you do that? |
| t ion s Note- | Adjective use, descriptive language, superlatives/ comparatives, ... said, the book says, first, second, next, etc., according to | Retell, recount, reorder, represent, depict, paraphrase, summarize, give examples, draw, explain, conclude, convert, describe, prepare, transform, translate, restate, | Retell the story in your own words. Summarize the chapter on What happened?, Report your findings., |

| | | | | |
|---------|---|--|---------------------------------|---|
| | | | | |
| Compare | Describe similarities and differences in objects or ideas | Make/explain a graphic organizer to show difference and similarity | Double bubble Map Bridge Map | Venn Diagram Semantic Feature Analysis T-Chart Fact-Opinion Charts |

| | | | |
|--|--|--|---|
| | | rewrite, prepare, give in your own words, generalize, extrapolate | Describe the main character. Tell about What happened? Show how |
| Diagram ic s is t opinion | However, but, as well as, on the other hand, not only....but also, either....or, while, although, unless, similarly, yet, compared with, similar to, different than, and yet, as opposed to, alternatively, apart from, by contrast, contrary to that, conversely, in spite of this, nevertheless, nonetheless, notwithstanding, regardless, some....., but others, still, then | Distinguish, compare, contrast, group, identify, illustrate, point out, recognize, separate, describe, attributes, commonalities, differences, differentiate | How are ... and ... the same? Different? Compare ... and ... Describe ... Now, describe.... Do either of these ... ? What makes... the same? What makes ... different? How do we know the difference between ... |

| | | | | |
|----------|---|--|----------|--|
| | | | | |
| Order | Sequence objects, ideas, or events | Describe/make a timeline continuum, cycle, or narrative sequence | Flow Map | Cycle C Flow cl Timelin Outline |
| Classify | Group objects or ideas according to their characteristics | Describe organizing principles, explain why A is an example but B is not | Tree Map | Hierarc Organiz Pictogr: |

| | | | |
|--------------------------|---|--|--|
| | again, by the same token, correspondingly, likewise, too | | and ...? |
| graph part ie s | First, second, third, ... Next, before, after, afterwards, later on, time, not long after, now, as, when, immediately, preceding, initially, meanwhile, following, until, soon, today, as soon as | organize, develop, discover, complete, process, outline, order | Put these in chronological order. What happened first? (Second, later, last, etc.) When was ... ? What would happen if ...? |
| hical zer aph | Descriptors, adjectives, kinds, types, traits, characteristics, an example of, list | Classify, break down, arrange, organize, categorize, construct, create, generate, summarize, criteria, preclude, include, arrange, group, genres | What colour is ...? What size is ...? What is the texture like? What types of ... are represented here? What traits do these ... have in common? |

| | | | | |
|---------|--|---|---|--|
| | | | | |
| Analyze | Separate whole into parts; identify relationships and patterns | Describe parts, feature or main idea of information presented | Brace Map Multi-flow Map Flow Map Tree Map Circle Map | Fishbor Organiz Main idea/sup details Organiz |

| | | | |
|---|---|--|--|
| | | | <p>What characteristics do these have in common?</p> <p>What makes these different?</p> <p>Sort these by ... (size, colour, texture, shape, etc.)</p> |
| <p>ie</p> <p>zers</p> <p>upporting</p> <p>zer</p> | <p>Is a part of, is related to, to be, same, different, similarities, differences, the common traits, so that, nevertheless, thus, accordingly, if....then (conditional connectors), makes, causes, because, creates, results in, due</p> | <p>Analyze, calculate, choose, classify, criteria, diagram, break down, categorize, classify, compare, contrast, deduce, detect, differentiate, discriminate, distinguish, group, identify, illustrate, infer, order, outline, point out, recognize, relate,</p> | <p>What is the difference?</p> <p>How is/are they related?</p> <p>Why is ... important?</p> <p>Are they common traits? What caused ... to happen?</p> <p>What results / consequences might ...</p> |

| | | | | |
|----------------------|--|---|----------------------|---------------------------------|
| | | | | |
| Infer | Make inferences; predict implications, hypothesize | Describe reasoning process (inductive or deductive) or generate hypothesis to generate causes or outcomes | Multi-flow Map | T-Chart |
| Justify and persuade | Give reasons for an action, decision, point of view, be convincing | Tell why A is important and give evidence in support of a position | Circle Map, Tree Map | Opposition forces c Predicti |

| | | | |
|-------------------------|--|---|--|
| | to, on account of, therefore | select, separate, subdivide, transform | create? What is the main idea? What details support this idea? |
| t | Future tense, use of will, if...not, if...then (conditional connectors), descriptive verbs, adjectives | Predict, extrapolate, restate, represent, rewrite, summarize, give example, evidence, supporting details, reconstruct, synthesize, derive, deduce, explain, create, construct | Why? Why did that happen? How did that happen? Why do you think ...? What makes you think...? What tells you...? How do you know that? |
| ng chart ion Tree | I think, according to, for example, in fact, most important, if ... not, if...then, I believe, because, since, based upon, you should, understand, on the contrary, you need | Justify, argue, persuade, make a case for or against, compare, contrast, distinguish, discriminate, illustrate, recognize, point out, relate, deduce, categorize, | Why do you think this is important? What evidence do you have to support your point of view? How |

| | | | | |
|----------------|--|---|----------------|---|
| | | | | |
| Solve problems | Define and represent a problem; determine solution | Describe problem-solving procedure; apply to real life problems | Multi-flow map | Problem solution Cause-effect chain Opposition forces |

| | | | |
|--|--|---|---|
| | to, therefore, from the point of view | combine, document, support, test, validate, verify, criteria, refer, relationship, irrelevant, preclude, include, give/suppose your point of view, tone, thesis, evidence, debate, crucial, critical | can you convince someone of your ideas? What reasons will you give to justify your point of view? How did you arrive at your decision? |
| n- 1 boxes effect ng chart | Because, since, therefore, so that, consequently, as a result, this led | Solve, deduce, hypothesize, cause, effect, support, test, validate, verify, summarize, rate, rank, measure, relate, recommend, justify, judge, interpret, determine, discriminate, decide, criteria, table, refer, relationship, diagram, consequence | What is the process to solve this problem? What is required to solve this problem? Why? What are the criteria? What is your hypothesis? What evidence do you have to support your |

| | | | | |
|------------|--|--|------------|------|
| | | | | |
| Synthesize | Combine or integrate ideas to form a new whole | Summarize information cohesively; incorporate new information into prior knowledge | Circle map | Webs |

| | | | |
|--|---|--|--|
| | | | hypothesis? What is the relationship between... and ...? What are the effects? What is your interpretation of this conclusion? |
| | Conjunctions, in other words; that is to say, to put it differently | Arrange, categorize, combine, compile, compose, construct, create, deduce, derive, design, devise, develop, document, explain, formulate, generalize, generate, integrate, modify, organize, prepare, plan, produce, propose, rearrange, reconstruct, relate, reorganize, revise, rewrite, specify, summarize, tell, transmit, write, criteria | What would your plan be for...? How might this be different if...? How would you rewrite this? How would you arrange this into...? How do they relate to each other? |

| | | | | |
|----------|---|--|--|--------------------------------------|
| Evaluate | Assess and verify the worth of an object, idea, or decision | Identify criteria, explain priorities, indicate reasons for judgement, confirm truth | Double Bubble map (prioritize characteristics) Multi-flow Map | Cause-effect chain, opposites forces |
|----------|---|--|--|--------------------------------------|

| | | | |
|------------------------|---|--|---|
| effect ing chart | I think, according to, for example, in fact, most important, for instance, for example, specifically | Appraise, argue, assess, compare, conclude, consider, contrast, criticize, critique, decide, describe, determine, discriminate, distinguish, evaluate, grade, judge, justify, write, recommend, validate, verify, test, support, rate, rank, measure, criteria, interpret, relate | What is your favourite...? Why? How does this impact ...? How or why is this significant? How or why is this valuable? How or why is this useful? What did you do to develop ...? Why? |
|------------------------|---|--|---|

Academic language functions are necessary in any content area. They can be divided into micro-functions and macro-functions (Kidd, 1996). Micro-functions, which are evident in limited stretches of discourse such as sentences, follow distinctive syntactic and lexical patterns such as discourse markers. Micro-functions are, for instance, comparing, classifying, and expressing relationships. Macro-functions, such as persuading, justifying, solving problems, evaluating, reporting, describing, or narrating, are present in longer stretches of discourse and may not be explicitly relatable to specific lexico-grammatical features on the syntactic level.

Successful achievement of these functions requires the use of lower-order (e.g. recalling facts, making definitions, identifying vocabulary) and higher-order thinking skills (e.g. using language to analyse, synthesize and evaluate) (Chamot and O'Malley, 1974:41). The authors admit that there is the overlap in terminology but emphasize that this 'suggests a close relationship between language functions and levels of thinking skills' (ibid.).

The academic functions do not operate on the same level. The language functions needed for dentistry activities requiring lower-order thinking skills are usually expressed with simple structures, for instance, the use of the language function of describing employed to provide some factual information. However, higher-order thinking skills used, for example, to obtain and record a complete history of the patients' medical, oral and dental state, as well as analysing and evaluating the patients' dental condition, are expressed with more complex language, vocabulary chunks and discourse features.

In theoretical literature (Wilson, 2000), there has been much discussion about the development of students' thinking skills that are closely related to the idea of transferable skills. Thus, in addition to the acquisition of the dentistry content, students are also expected to develop transferable skills.

Chamot and O'Malley (1974:41) argue that 'discrete language elements such as vocabulary, grammatical structures, spelling, and pronunciation are integrated into the language functions used in the content activity, not taught as separate components. Integrative language skills are needed to carry out the linguistic functions of content subjects.'

Since it is impossible to discuss all academic functions in this manual, only the functions of definitions, hypothesizing and instructions are discussed below.

2.2.1 Academic Functions: Definition

Definitions are highly relevant in academic and professional contexts, as the discourse of training manuals and textbooks for students new to the field of dentistry demands a frequent use of the function of definition since they encounter new terms and concepts there. They are also relevant for professional academic writing and are used in CLIL classes to explain unknown concepts.

A definition is a statement that explains the meaning of some term – a definiendum – using a set of other words – definiens. In a definition, Latin terms tend to be avoided and English ones are used instead. The definition may range from a word to paragraphs.

There are two types of definitions (Trimble, 1990: 20): a simple or a single-sentence definition and a complex or an expanded definition.

The simple definition, which can stretch a sentence or less, can be of *formal*, *semi-formal*, and *non-formal types*. Each type provides different amount of information at different levels of precision (Trimble, 1990: 75).

The *formal definition* provides the largest amount and most precise information. They give us three kinds of information, which can be expressed with the help of this equation: **T= C+D**.

1. The term being defined (**T**) is the definiendum.
2. The class / the superordinate to which the term is a member (subset)/it belongs (**C**).
3. The difference/s between the term and all other members of the class (**D**).

The third piece of information is very important, as it provides characteristics that identify the term and at the same time separates it from the other members of its class. On the linguistic level, the specifying features are realized through relative clauses, adjectives or reduced relatives. For example,

a) A dentist = **T** is a person = **C** who treats people's teeth = **D**.

b) Amalgam = **T** is an alloy = **C** used in direct dental restorations= **D**. (Online 2)

Thus, in example b) the term being defined is *amalgam* (T), which is linked to the superordinate term *alloy* (C) by means of a copula construction (T = C), which is followed by specifying its use (D). A reduced relative clause has been used.

Knowing how to make a definition involves two kinds of knowledge: formal-linguistic and extralinguistic. In terms of the linguistic form, definitions can hardly be regarded as highly demanding: copula constructions and noun modification are both basic structures which are learned early. However, students must also be able to make decisions on category membership and giving information on the specifying features.

The *semi-formal definition* leaves out an important item; nevertheless, it gives us almost as much information and with as much precision as the formal one. *Semi-formal definitions* refer to the form of the definition and contain only two of the three defining elements and give the reader two kinds of information:

1. The name of the term being defined.
2. The difference/s between the term and the other members of the class. The class is not stated, as the writer assumes this either to be too obvious or to be of no importance.

For example, Amalgam = **T** is used in direct dental restorations= **D**.

The *non-formal definition* provides the least amount of information with less precision. Thus, it does not give much information, and it is not very precise; its aim is to define a term in a general sense. For instance, amalgam is a mixture of metals. Most non-formal definitions are in the form of synonyms, as well as in the form of negative statements and antonyms.

A non-formal definition; for example, *Calculus is tartar*, gives the reader two kinds of information:

1. The name of the term being defined.
2. Another word or phrase (e.g. a synonym or an antonym) having the approximate meaning of the term, or giving an exceptional characteristic of the term.

The complex definition attempts to explain a complex term. It may be developed in paragraphs, may have special functions such as stipulation, operation, and explication, and may have a simple definition for their core statement (Trimble, 1990: 75). It has a simple definition as a main statement, which establishes the focus for the rest of the discussion. For instance, the underlined text is a formal sentence used to begin a complex definition.

Stress is a measure of the internal reaction between elementary particles of a material in resisting separation, compacting, or sliding that tend to be induced by external forces. *Total internal resisting forces are resultants of continuously distributed normal and tangential forces that are varying magnitude and direction and are acting on elementary areas throughout the material. These forces may be distributed uniformly or nonuniformly. Stresses can be categorized as tensile, compressive, or shearing, according to the straining action.* (Online 3)

Jordan (2001: 38) provides structures used in definitions (see Table 2.4), which are helpful for teaching and learning purposes.

Table 2.4 Frequently used verb forms used in definitions (Jordan, 2001: 38)

| | | |
|---|-------------------|---|
| X | is... | Y |
| | means... | |
| | describes ... | |
| | is defined as... | |
| | is used... | |
| X | is concerned with | |
| | deals with | |
| | relates to | |
| | Involves | |

In order to define the term precisely, they incorporate various sources of information and use other rhetorical functions, for instance, description and classification along with such rhetorical techniques as contrast, exemplification, cause and result.

Table 2.5 Rhetorical functions and techniques (Online 3)

| Rhetorical functions and techniques | Checklist |
|-------------------------------------|---|
| Description | Does anything about the term need to be described? Would the reader be helped by the description? |
| Process narration | Does some process, event, performance, or action related to the term need to be explained? |
| Further definition | Do additional terms used during the discussion need |

| | |
|-------------------------------------|---|
| | definition? |
| Historical background | Should historical background, events related to the term being defined, be discussed? |
| Cause/s | Does the reader need to know about the cause/s related to the term being defined? |
| Effects, results, or consequences | Will discussion of the effect, result, or consequence help define the term? |
| Problems and solutions | Does the term being defined represent a problem or solution? |
| Uses and applications | Should the uses or applications related to the term be discussed? |
| Similarities and differences | Should the term be compared to something similar or more familiar? |
| Classes, types, categories, kinds | Should the class that the term being defined to be discussed? Should the term being defined be divided into its own classes? |
| Examples | Will examples help in the definition of the term? |
| Word origins | Would an understanding of the roots, the etymology of the word help to define it? |
| Future developments or implications | Should the future development related to the term be discussed? Does it have implications- good, bad or both? |
| Negative statements | Would negative statements explaining what the term is not prevent the reader from confusing the term being defined with others? |
| Advantages, disadvantages | Should advantages or disadvantages related to the term be discussed? |

Within the framework of English for Academic purposes and to communicate information successfully by constructing a connected text, students' awareness of text cohesion principles should be raised. For example, conjunctions and sentence adverbials are useful means to express similarities and differences, effects, results, or consequences and causes in dentistry- related written discourse.

2.2.2 Academic Functions: Hypothesizing

Christiane Dalton-Puffer (2007:159) claims that hypothesizing and predicting are one of the core academic language functions related to high-level thinking skills. The American Heritage Medical Dictionary (2007, Online) defines the hypothesis as

1. A tentative explanation for an observation, phenomenon, or scientific problem that can be tested by further investigation.
2. Something taken to be true for the purpose of argument or investigation; an assumption.
3. The antecedent of a conditional statement.

Thus, a hypothesis is an assumption or prediction about what something would be like if certain conditions are met.

Hypothesizing is an activity which incorporates facts that are set ‘against a projection into the space of possibility, effect, or simply future time in general’ (Dalton-Puffer, 2007:160). Hypothesizing can be operationalized by using grammaticalized or lexicalized expressions that characterize a situation as non-factual. The author (ibid.) refers to modality in this regard and emphasizes that it is ‘rather complex, operating on the morphological, lexical and phrasal level, including modal verbs (*can, will, may* etc.), adverbs (*probably, perhaps, possibly, possibility*), conditional conjunctions (*if*) and lexical phrases’. For instance, *If you leave plaque on your teeth, it can harden into tartar. If you go to the dentist regularly and take good care of your teeth, there will probably be no pain.*

The author mentions the following near-synonymous lexical verbs introducing hypothesizing episodes: *assume, guess, hypothesize, imagine, predict, propose, speculate, suggest, suppose* (ibid.). These verbs tend to appear in relatively complex verb phrases. The following phrases can be used: *let’s think/say/assume/imagine, (so) what would happen (if), what will happen if, what happens if, can you predict, what would your prediction be, what would you propose* (ibid.: 161). For instance, *The dental team cannot always assume that the dental patient has meticulous oral habits* (Online 4) *What could happen if I chose not to have a dental crown?*

2.2.3 Academic Functions: Instructions

Conveying information in a socially acceptable way through building and maintaining social relationships by using socially appropriate language with patients may pose a challenge to foreign language users.

The rhetoric of instructions, which is discourse that tells someone to do or not to do something, can be found in both academic and professional discourse. In academic discourse, instructions are present in textbooks, manuals and in interaction with the lecturer and fellow-students, and in professional discourse, instructions are present in manuals and interaction with patients.

Instructions can be of two types: 1) direct instructions, characterized by the use of the imperative form of the verbs, which are often given in the form of a numbered list, 2)

indirect instructions, characterized by non-imperative forms and the use of modal verbs and the passive voice. In writing, direct instructions usually have a statement indicating their aim, followed by a vertical list, whereas indirect instructions are usually a paragraph, headed by a thesis statement indicating the aim of instructions (Trimble, 1990:96).

The following are brushing and flossing instructions (Online 5):

You should brush your teeth thoroughly at least twice a day to remove plaque to prevent tooth decay. Follow the steps below for proper brushing. Contact your doctor if you have any questions.

- *Use a toothbrush with soft bristles. They are kinder to your teeth and gums. They also make it easier to remove plaque from below the gumline, where gum disease starts.*
- *Use a pea sized amount of toothpaste that contains fluoride. Fluoride strengthens the outer enamel layer of the teeth. It can stop a cavity in its tracks and give you more resistance to future cavities.*
- *Make sure your brushing routine lasts long enough to thoroughly remove plaque. We recommend that you brush for at least 2 minutes.*

The example above starts with an indirect instruction marked by the modal verb *should*, telling the reader how often and why they should brush their teeth. The reader familiar with the conventions of written instructional discourse will treat this as a direct instruction. This sentence also explains the purpose of brushing the teeth, which is a piece of instructional information. This is followed by two direct instructions marked by the use of the imperative integrated in the paragraph. A list of direct instructions with explanations and/or descriptions follows, e.g. *They are kinder to your teeth and gums. Fluoride strengthens the outer enamel layer of the teeth.* Other corollary information is given, for instance, a warning *where gum disease starts* and a recommendation *We recommend that you brush for at least 2 minutes.*

As it can be seen, instructional information, which can be in the form of warnings, cautions, notes, specifying statements and theory (Trimble, 1990:98) helps the reader understand the instructions better; it is always associated with direct or indirect instructions, and they are often used together. In spoken professional interaction, both direct and indirect instructions can be observed, for instance, *Open your mouth wide. You can rinse your mouth now.* In spoken classroom interaction, instructions would be in the form of lecturer's requests directed to the core goals of the class such as

instructions for tasks or requests for starting or stopping an activity, for example, *Open your books on page 15, Could you start reading on page 15).*

As Trimble notes (ibid.: 88-99), instructions may have syntactic and lexical problems, for instance, they may lack clarity, contain ambiguities, lack organization, and leave new terms undefined.

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3 Student-Centred Methodologies and Teaching Macro-Skills: Listening, Reading, Speaking, and Writing

The interactive approach to learning and teaching assumes that the lecturer makes a principled decision as to the eclectic method for improving opportunities for content learning and development of the four language macro-skills: speaking, listening, reading and writing. Instructional strategies focus on using meaningful skills and language-focused tasks and activities through individual and collaborative learning.

Ferguson (in Paltridge and Starfield, 2013: 260) enlists the situations of potential difficulty for non-Anglophone doctors, which can be applied to non-Anglophone dentists:

- 1 Rapid reading of textbooks/professional journals/papers for information;
- 2 Detailed study of textbooks/journals/papers, etc.;
- 3 Writing papers/reports/articles in English for publication/symposia/conferences;
- 4 Corresponding with English - speaking colleagues on professional matters;
- 5 Understanding lectures/papers in English delivered orally at conferences, medical meetings, symposia, etc.;
- 6 Giving papers/lectures in English at conferences, medical meetings, symposia, etc.;
- 7 Participating in (i.e. understanding and contributing to) formal discussion at conferences, etc.;
- 8 Participating in (i.e. understanding and contributing to) informal discussion at conferences, etc.;
- 9 Participating in post - graduate courses in English - speaking medical institutions;
- 10 Entertaining/being entertained;
- 11 Doing clinical work with English - speaking patients;
- 12 Doing clinical work with English - speaking colleagues (ibid.).

3.1 Listening and Speaking

Success of health-care provision in dentistry is affected by the quality of patient-dentist and inter-professional interaction, in which the interpersonal and ideational metafunctions play a vital role.

The interpersonal language function is person oriented. The language is often used to discuss uncomplicated or familiar topics to the speakers in contexts that have many verbal and non-verbal cues to meanings, which provide opportunities to interact, thus facilitating comprehension. The interpersonal function generates such choices as the

use of modal verbs, mood, and attitudinal elements in order to help speakers express their stance towards the dentistry content. On the contrary, the ideational language function is message oriented focusing on participants, circumstances, processes, content and imparting new or factual information. In CLIL instruction, this function generates specific structures at the syntactic level: the nominal groups realizing subjects and objects; verbal groups realizing transitive or intransitive verbs.

Although the two functions are often intertwined, language used for academic and professional purposes, which is used to impart new and often complicated information, is mostly ideational, and since verbal and non-verbal cues may not be present, it is more complex and, therefore, more difficult to comprehend than the language used for social purposes.

Content-based listening is the use of content as the course focus. The content is presented through listening via lectures, presentations, discussions, video, and alike.

The lecture is the main spoken genre in academic settings, where a one-way information flow seems to be the dominant mode. Recently, still retaining its form as a fairly monologic genre based on the elements of written discourse, it has a tendency of becoming interactive. From a pragmatic perspective, listening to lectures is a communication process, where the lecturer is trying to convey a message using a spoken discourse, but the student is trying to understand it.

Depending on the type of lecture, it may provide few context clues to assist comprehension. In order to assist the student in listening comprehension of the received information, the lecturer must be able to express ideas and convey information in a coherent and cohesive way. First and foremost, the lecture has to be structured. It should have a discourse structuring phase: an introduction to the content, where the lecturer identifies topics that are to be covered, the body of the lecture giving details, and finally the summary of the lecture.

Lecturers should use verbal and non-verbal rhetorical signalling cues in each phase of the lecture. In the body of the lecture, they can develop the discourse by acknowledging, replying, giving feedback; asking for clarification, or they can extend the discourse by exemplifying, adding points, and alike. Closing the discourse

involves marking the boundaries and concluding the topic by using appropriate verbal cues such as substantiating, summing up, and alike.

Over the last decades, there have been observed marked changes in terms of lecture delivery: from the widespread use of PowerPoint presentations to the use of recorded lectures. In spite of the technological advances, live lectures are an important teaching tool, and they still play a significant role in the learning process. Therefore, students still practise note-taking, as it is an effective learning skill.

Note-taking is an indispensable part of the study process, as it serves as a correlation between spoken and written discourse, bridging the gap between the two of them. If decoded, the information presented by the lecturer enters the mind of the student, and communication is achieved. Besides, note-taking is a complex and cognitively demanding task. It requires a high level of top-down processing skills. The student is expected to focus on the lecture content by paying attention to the information under discussion, by organizing it and by following the further development of the material. While note taking, the student might face difficulties with bottom-up processing skills, such as dealing with unknown vocabulary or the speed of delivery.

Despite these difficulties, note-taking has proved to be very beneficial for the storage of information. Besides, note-taking focuses on the student's attention drawn on the lecture and thus facilitates deeper processing and comprehension through the analysis, selection and organization of the information.

Although note-taking is a study skill which is often assumed to be easy by students, in practice they often do badly. The most important point about note-taking is that there is no single method which is appropriate for everyone. Therefore, this methodology guide offers a brief insight only into one of them, namely, the Cornell Note-Taking System favoured by many universities and study guides.

The Cornell Note-taking System, designed by Walter Pauk at Cornell University, works best when the lecturer presents information in a logical sequence. As it can be seen from Figure 3.1 below, the right side of the page is used for formal notes, while the left side of the page is meant for the keywords and questions relevant to the notes

on the right. At the bottom of the page, the student writes a brief summary of that page of notes. The system can be adapted to be used on a computer.

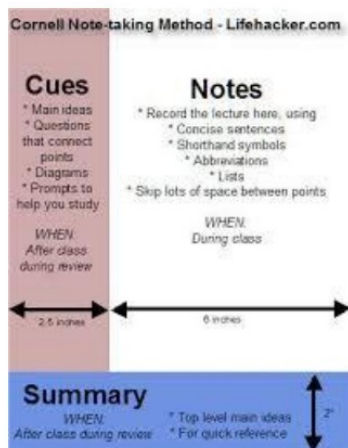


Figure 3.1 Cornell Note-Taking System

For the communication process to be successful, the student involved in a lecture comprehension process has to employ at least five types of competences: pragmatic (i.e., application of world, schematic, and context knowledge), semantic (i.e., processing of propositions), syntactic (i.e., processing of phrases and clauses), lexical (i.e., processing of words), and phonological (i.e., processing of acoustic input), which interact with one another. The competences can be represented hierarchically, where the pragmatic competence is the highest, and the phonological competence is the lowest level. The competences interact; however, only the higher level processes may facilitate the lower level processes.

The comprehension of lectures and other genres of spoken discourse involves two-stage processes: top-down and bottom-up approaches.

In the bottom-up approach, the listener's lexical and phonological competence provides the basis for the processing of the text. The process of comprehension begins with the message received, which is analysed at successive levels of organization, for example, recognizing key words; the function of word stress in sentences, the function of intonation in sentences, and the function of key transitions in a discourse.

The main skill used by students in decoding meaning in spoken discourse relies on their phonological competence or the ability to identify the main points or important information through recognizing features specific to spoken discourse, which involves not only recognizing unit boundaries phonologically, but also identifying false starts, hesitations, stress and intonation patterns, decreased speed, increased volume. Also, prosodic features are very important since students do not have a written text, and they cannot look for punctuation, headings, sub-headings, paragraphs and other cues to coherence.

The top-down approach entails the use of background knowledge of the topic to comprehend the spoken text. Students' knowledge of phonology, morphology, syntax, and lexis cannot be activated until they take on a pragmatic perspective, which includes the degree of coordination and collaboration between the lecturer and the student. Moreover, if communication is to take place, the lecturer and the student should have in common not only the same code (i.e. the language) and a similar linguistic competence, but also should share similar assumptions about the world. A problem arises if there is a discrepancy between the presuppositions of the lecturer and the student. The types of assumption we make about the world depend on what we have experienced and how the acquired knowledge has been organized in a mental structure called schema, which is created through experience with the world. Schemata provide a framework for understanding, remembering and applying information. There is a distinction between *formal schemata* (background knowledge of the formal, rhetorical organizational structures of different genres) and *content schemata* (background knowledge of the content area of a text, situational or contextual knowledge) (Carrell, 1990: 104). In the latter case, if students lack a particular content schema, listening to or reading the texts that imply content knowledge may result in the students' difficulty to comprehend the text (Johnson 1981; Carrell 1981). Examples of top-down processing are inferring the role of the participants in a situation, cause-effect relationships, and the topic of discourse, as well as distinguishing between facts and opinions.

In order to follow and comprehend a complicated subject matter such as dentistry expressed by using a linguistically complex language, the students require a mastery of listening skills that are necessary to take part in formal lectures and academic

presentations as well as in such interactive exchanges as seminar settings and conversational lecture styles (Peterson in Celce-Murcia, 2001: 87).

The development of effective academic listening skills is an essential task for students. The typology of the micro-skills below (see Figure 3.2) can be applied to lectures, presentations and other types of monologues.

1. Ability to identify purpose and scope of lecture;
2. Ability to identify topic of lecture and follow topic development;
3. Ability to identify relationships among units within discourse (e.g. major ideas, generalizations, hypotheses, supporting ideas, examples);
4. Ability to identify role of discourse markers in signalling structure of a lecture (e.g. conjunctions, adverbs, gambits, routines);
5. Ability to infer relationships (e.g. cause, effect, conclusion);
6. Ability to recognize key lexical items related to subject/topic;
7. Ability to deduce meanings of words from context;
8. Ability to recognize markers of cohesion;
9. Ability to recognize function of intonation to signal information structure (e.g. pitch, volume, pace);
10. Ability to detect attitude of speaker toward subject matter;
11. Ability to follow different modes of lecturing: spoken, audio, audio-visual;
12. Ability to follow lecture despite differences in accent and speed;
13. Familiarity with different styles of lecturing: formal, conversational, read, unplanned;
14. Familiarity with different registers: written versus colloquial;
15. Ability to recognize irrelevant matters: jokes, digressions, meanderings;
16. Ability to recognize function of non-verbal cues as markers of emphasis and attitude;
17. Knowledge of classroom conventions (e.g. turn taking, clarification requests);
18. Ability to recognize instructional/learner tasks (e.g. warnings, suggestions, recommendations, advice, instructions).

Figure 3.2 Micro-Skills: Academic Listening (Richards, 1983)

Lectures can serve as examples of good practice, as would-be dentists should be able to give effective presentations to foster professional and research collaboration with colleagues from abroad in international conferences and other events.

Apart from formal situations, would-be dentists should be ready for clinical situations such as patient-dentist communication, in which a dentist obtains and shares information with a patient.

Interpersonal spoken discourse in professional settings, for instance, communication with English-speaking patients on basic topics of routine dental consultation and

treatment, such as asking patients about their medical and dental conditions as well as explaining dental procedures in English, can be characterised as being fundamentally interactive and happening under real-time processing constraints. Therefore, even advanced users of English often encounter problems in a spontaneous professional conversation due to the complex nature of spoken interaction.

Applied conversations modelling inter/intra-professional communication, including different dental situations between professionals and patients, for instance, chair-side conversations, medical and dental history-taking, answering inquiries by telephone, interviewing first visit patients and pediatric patients, will enable students to practise turn-taking, the use of adjacency pair structures to open, maintain, close and/or repair interaction and terminology in context. These situations are characterised not only by the use of language for interactional purposes, but they also bear ideational nature, as information is exchanged, and problems are solved. Thus, students will be able to improve not only self-confidence in social interaction, but also their critical thinking skills.

3.2 Reading and Writing

3.2.1 Reading

The development of reading skills has to be as authentic as possible. A reading part of the class can take different forms according to the students' needs. It is important to understand whether they need to develop reading skills in English, or they need better English in order to be able to read. In other words, do they have a reading problem (TAVI) or a language problem (TALO) (see Table 3.1). In CLIL, the purpose of reading is usually to obtain or provide information; therefore, the extraction of information from the text should be the primary focus, with the language focus work coming secondary.

The TAVI approach practises reading skills needed for reading for information and is in line with communicative methodology, whereas the TALO approach is also useful for effective reading as TALO activities, for instance, raising awareness of discourse structure can assist the comprehension of the text. Besides, they can follow the

primary task of comprehending meaning. In fact, it is important to consider the balance between the development of general language proficiency and reading skills.

Table 3.1 TALO and TAVI approaches to reading

| | TALO Text as linguistic object | TAVI Text as vehicle of information |
|----------------------------------|---|---|
| Text selection principles | <ul style="list-style-type: none"> texts chosen to exemplify syntactic structures being taught at the time and some new vocabulary, text selected by lecturers, subject matter of secondary importance, usually of general interest, comprehensible to both lecturer and learner, texts are short, linguistically graded, sometimes simplified. | <ul style="list-style-type: none"> texts chosen according to learners' needs, texts selected by lecturers and learners, authentic texts of different lengths are used, grading is through tasks |
| Preparatory activities | <ul style="list-style-type: none"> usually none, sometimes a preliminary word list to learn as homework; some translation of vocabulary. | <ul style="list-style-type: none"> a crucial stage in the lesson: activating learners' interest and topic knowledge through prediction and discussion activities and to establish purpose. |
| Work with text | <ul style="list-style-type: none"> focus on language rather than information, focus on detail and understanding all the sentences and words rather than overall meaning, any discussion of meaning or identification of main points for summary is done in the end. | <ul style="list-style-type: none"> focus on meaning, first overall meaning, guessing from context, not interrupting flow of argument by checking on details, after the gist is understood, then details and specific points are dealt with. |
| Classroom interaction | <ul style="list-style-type: none"> lecturer does most of the talking; teacher monologue, lecturer talks, asks questions, checks on answers. Learners answer lecturer's questions, lecturer evaluates. | <ul style="list-style-type: none"> learners work in groups, talking with each other. learners work together on comprehension tasks, they ask questions, answer them, etc. They evaluate each other. model for self-study, learner-centred. |
| Follow-up activities | <ul style="list-style-type: none"> written answers to comprehension questions, if not done in class. grammar and vocabulary exercises. summary-writing. Translation. | <ul style="list-style-type: none"> authentic task in accordance with the real-life use of the text: for study purposes transferring information from the text into notes, diagram or flow-chart, or combining the information with information from other texts, or using the information to carry out a subject-related task. |

3.2.2 Writing: Research Articles

Writing in higher education (HE) and in professional settings fulfils an array of purposes according to the various contexts in which it occurs, as students have specific communicative needs determined by the social purposes and rhetorical practices of the target discourse community.

Writing tasks in HE are embodied in a range of genres: lecture notes, summaries, course reports, essays, BA papers, and MA papers. The differences among the genres can be seen by studying their rhetorical structure and the lexico-grammatical structures.

The field-specific professional domain uses research articles (RAs) to contribute to the body of knowledge in the field. Generally, students are not expected to write RAs in the academic context yet, but they serve as mini examples of the theses students have to write in order to graduate. Besides, RAs provide much information for their studies; thus, they have to understand their structure in order to retrieve the necessary information fast.

Typical RAs form the so-called IMRaD structure, that is, the Introduction, Methods, Results and Discussion (Feak and Swales, 1994: 156-157). Each of these four moves has a communicative purpose. The introduction, moving from general topic-related issues to the particular research question/hypothesis, aims at providing the rationale for the RA as well as attracting the readers' interest. The methods section, being the narrowest part of the RA, describes the methodology, materials and research procedure. The results section describes the findings, and the discussion section provides 'an increasingly generalized account of what has been learnt in the study' (ibid.).

Ferguson offers the structure of the medical research article (in Paltridge and Starfield, 2013: 260):

| | |
|---------------------|--|
| Introduction | Move 1 Presenting background information; Move 2 Reviewing related research (including limitations); Move 3 Presenting new research; |
| Methods | Move 4 Describing data collection procedure; Move 5 Describing experimental procedures; Move 6 Describing data analysis procedures; |
| Results | Move 7 Indicating consistent observation; Move 8 Indicating non - consistent observation; |
| Discussion | Move 9 Highlighting overall research outcome; Move 10 Explaining specific research outcomes; Move 11 Stating research conclusions; |

There are other structures of RA, for instance, AIRDaM (Abstract, Introduction, Results, Discussion, and Methods and materials) and AIMRaD (see Figure 3.3 below)

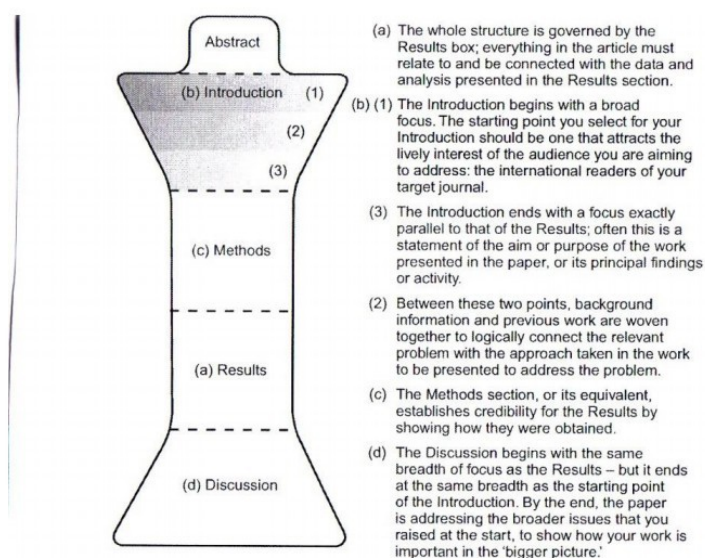


Figure 3.3 AIMRaD Research article structure (in Cargill, M. and O'Connor, P. :2009)

The abstract as a part-genre provides a description or a concise factual summary of the RA. Its importance has increased with the emergence of online databases, which offer free access only to the abstracts but not the articles. The schematic structure of the abstract is a carrier of disciplinary discourse community's assumptions as to its form, and due to the 'vastly increased size of the medical discourse community' (Ferguson in Paltridge and Starfield, 2013:248) and its keen interest to publish their RAs, researchers must meet the discourse community's expectations and structure their abstract appropriately.

There are two types of abstracts: descriptive and informative. Descriptive ones tell the readers what information the text contains and include the aim and the methods of the paper, however, do not provide the results, conclusions or recommendations of the research. Informative abstracts are like descriptive ones, but they also inform the readers about the results and conclusions of the conducted research.

Swales (1990: 181) contends that abstracts follow the IMRAD (i.e. introduction, methods, results and discussion) pattern of the research article abstract and points to five typical moves, each move having a specific communicative purpose.

Utilizing the Swalesian IMRAD model, most abstracts have the following structure:

Move 1 Introduction - it introduces the topic of the research and what has been done in that area so far, by establishing the context of the RA. **Move 2 Purpose** - it gives a precise indication of the author's intention that forms the basis of the research being reported. It contains the specific research question stated in terms of relationships between the variables that were investigated. It may also include the goals or objectives of the research or the problem that the author wishes to tackle. **Move 3 Method** - it gives a good indication of the research design, including information on the data, procedures or method(s) used and, if necessary, the scope of the research being reported. **Move 4 Results** - it mentions the observations and the major findings and also suggests solutions to the problem, if any, posed in the first move. Results should generally be reported in the past tense, but the authors' interpretation of the factual findings is in the present tense. In case of a lack of definitive answers, words indicating tentativeness, for example, *suggest* and *may* can be used. **Move 5 Conclusion** - it interprets results and draws inferences. It typically includes some indication of the implications and applications of the present findings.

EASE Guidelines for Authors and Translators of Scientific Articles to be Published in English (2014) also suggest the same pattern. The abstract of the article entitled *Predicting malaria epidemics in Ethiopia* below exemplifies a typical rhetorical structuring of RA abstracts.

Introduction/background *Most deaths from malaria could be prevented if malaria epidemics could be predicted in local areas, allowing medical facilities to be mobilized early.* **Purpose** *As a first step toward constructing a predictive model, we determined correlations between meteorological factors and malaria epidemics in Ethiopia.* **Methods** *In a retrospective study, we collected meteorological and epidemic*

data for 10 local areas, covering the years 1963-2006. Poisson regression was used to compare the data. **Results** Factors AAA, BBB, and CCC correlated significantly ($P<0.05$) with subsequent epidemics in all 10 areas. A model based on these correlations would have a predictive power of about 30%. **Conclusions** Meteorological factors can be used to predict malaria epidemics. However, the predictive power of our model needs to be improved and validated in other areas. This understandable and concise abstract forms the “skeleton” for the entire article. A final comment: This example is based on an actual research project and, at first, the author was in a “box” full of the mathematics, statistics, and computer algorithms of his predicting model. This was reflected in his first version of the abstract, where the word “malaria” never appeared. (EASE Guidelines: 2014)

It is advisable to check the relevant publisher or journal before starting to write an RA for them, as they may have particular guidelines which should be followed. So, British Dental Journal (BDJ) (Online) emphasizes that the RA in the BDJ should ‘focus on experimental studies and clinical research in dental practice and allied topics’, and the abstracts should be structured under explicit headings:

Objective: The abstract should begin with a precise statement of why the study was done, usually in one sentence. It should be possible to make a connection between the conclusion and the objective.

Design: A few words describing the type of study — for example, 'double blind trial', 'prospective random control trial', 'retrospective analysis', 'open study', and whether the study was single or multi-centre.

Setting: To assist readers to assess the applicability of the study to their own circumstances this paragraph should state whether the setting was the community, a university department, a hospital, or general practice. The country and year of the study should be given.

Subjects (materials) and methods: This should state whether and how subjects were selected and from what population. This will give the reader an idea of the generalisability of the results.

Interventions: This should include a description of any intervention. Generic names of drugs are preferred but trade names may be given as well in case there is some difference in the formulation from country to country.

Main outcome measures: Methods by which patients were assessed or the success of experiments judged should be mentioned, and those that may be unfamiliar to readers should be described. The outcome that was sought should be stated.

Results: The main results should be given, including the number, gender and age of the subjects, together with a note of the fate of exclusions and withdrawals. Numerical results should be stated as mean (SD) or mean (SEM) in the case of normally distributed data, and median (range or interquartile) if the data are skewed; 95% confidence intervals (CI) and the level of significance of differences should be indicated. If the differences in the main outcome measures between two (or more) groups are not significantly different the 95% CI for the difference should be given and any clinical inference stated.

Conclusion(s): Only those conclusions supported by the data that are presented should be given, followed by a short statement on the clinical applications of the

results, if any, bearing in mind the limitations implicit in the study — for example, size of sample, number of withdrawals, or length of follow-up. (BDJ: Online)

The communicative function of *the introduction* is to show the relevance of a particular study by placing it in the context of the previous research. A disciplinary discourse community may affect the way introductions are structured.

In his later version developed in 1990 (see Figure 3.4 below), Swales introduced the concept *step*, which ‘... is a lower level text unit than the “move” that provides a detailed perspective on the options open to the writer in setting out the moves in the introduction’ (Dudley-Evans and St John, 1998: 89), and which takes into consideration the writers’ rhetorical or social purposes in structuring and wording introductions.

In Swales’ CARS model, the communicative function of **Move 1** is to introduce the research field by showing that the particular research area is relevant, interesting or problematic in some way and by introducing items of previous research in the field. **Move 2** aims at establishing a niche by indicating a gap in the previous research, raising a question about it, counter-claiming, and/or extending previous knowledge in some way. The purpose of **Move 3** is to occupy the niche by outlining purposes or stating the nature of the present research, and/or indicating the structure of the RA. Thus, here the writer states the significance of the research problem, indicates the research method used and the population of the research, followed by the outline of the RA.

| | |
|--|------------------|
| MOVE 1: ESTABLISHING A RESEARCH TERRITORY | SITUATION |
| STEP 1: by showing that the general research area is important, central, interesting, problematic, or relevant in some way (optional) | |
| STEP 2: by introducing and reviewing items of previous research (obligatory) | |
| MOVE 2: ESTABLISHING A NICHE | PROBLEM |
| STEP 1 by indicating a gap in the previous research, raising a | |

| | |
|---|-----------------|
| question about it, or extending previous knowledge in some way (obligatory) | |
| MOVE 3: OCCUPYING THE NICHE | SOLUTION |
| STEP 1: by outlining purposes or stating the nature of the present research (obligatory) | |
| STEP 2: by announcing principal findings (optional) | |
| STEP 3: by indicating the structure of the RP (optional) | |

Figure 3.4 CARS Model for Article Introductions (adapted from Swales, 1990)

Figure 3.5 below emphasizes the structuring of the introduction: from more general statements to more specific ones.

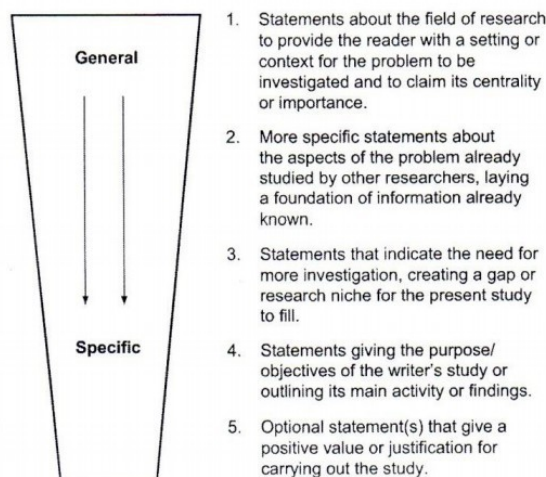


Figure 3.5 Research article introduction: structure (Cargill and O'Connor, 2009)

In the *Methods* section of the RA, writers inform the reader about the research methods used in the study, give an account of how data were collected, what the procedure for the experiment or any other research method was, and how the data analysis was conducted. The Methods section should be clear and detailed enough for another researcher in the field to replicate the study and reproduce the results. It is important to remember that the verbs are written in the simple past tense. The Methods section is generally structured in three rhetorical moves: (1) describing data collection procedures, (2) delineating procedures for measuring variables, and (3) elucidating data analysis procedures. Figure 3.6 below provides a detailed account for structuring the Methods section (Lim, 2006). Each of the rhetorical moves is broken into more detailed steps.

| | | | |
|---------------|--|----------------|--|
| Move 1 | Describing data collection procedure/s | <i>Step 1</i> | Describing the sample |
| | | <i>Step 1A</i> | Describing the location of the sample |
| | | <i>Step 1B</i> | Describing the size of the sample population |
| | | <i>Step 1C</i> | Describing the characteristics of the sample |
| | | <i>Step 1D</i> | Describing the sampling technique or criterion |
| | | <i>Step 2</i> | Recounting steps in data collection |
| | | <i>Step 3</i> | Justifying the data collection procedure/s |
| | | <i>Step 3A</i> | Highlighting advantages of using the sample |
| | | <i>Step 3B</i> | Showing representativity of the sample |

| | | | |
|---------------|---|----------------|--|
| Move 2 | Delineating procedure/s for measuring variables | <i>Step 1</i> | Presenting an overview of the design |
| | | <i>Step 2</i> | Explaining method/s of measuring variables |
| | | <i>Step 2A</i> | Specifying items in questionnaires/databases |
| | | <i>Step 2B</i> | Defining variables |
| | | <i>Step 2C</i> | Describing method/s of measuring variables |
| | | <i>Step 3</i> | Justifying the method/s of measuring variables |
| | | <i>Step 3A</i> | Citing previous research method/s |
| | | <i>Step 3B</i> | Highlighting acceptability of the method/s |
| Move 3 | Elucidating data analysis procedure/s | <i>Step 1</i> | Relating (or 'recounting') data analysis procedure/s |
| | | <i>Step 2</i> | Justifying the data analysis procedure/s |
| | | <i>Step 3</i> | Previewing results |

Figure 3.6 Rhetorical structure of the Method section (Lim, 2006)

The Results section presents, describes and comments on the most important findings of the study. The Results section typically

- highlights the important findings;
- locates the figure(s) or table(s) where the results can be found; and
- comments on (but does not discuss) the results.

(Cargill and O'Connor, 2009:31)

As it can be seen above, *the Results section* is likely to consist of tables and figures, which must be mentioned in the main body of the article, but researchers do not have to repeat in words all the results from the tables and figures; they should comment only on the significant data shown.

A summary statement usually identifies the table or figure and indicates its content, which is followed by statements pointing out and describing the relevant or significant data. More elaborate commentary on the results is normally restricted to the Discussion section.

It is not uncommon for *the Results section* to be combined with the Discussion section under the heading: Results and Discussion.

The Discussion section in the RA is probably the most complex section in terms of its elements. As there is usually more than one result, *the Discussion section* is often structured into a series of discussion cycles. Ferguson (in Paltridge and Starfield, 2013:252) contends that ‘one might expect a somewhat greater number of hypothetical (or “refocusing”) conditionals as the writing here becomes more argumentative and speculative.’

The research questions posed in the Introduction should be answered, and the results with published data should be compared objectively. Their limitations should be discussed and the main findings emphasized. Contrary findings should be considered and only methodologically sound evidence should be used. It should be noted that when offering explanations and suggesting implications the language used is tentative or cautious.

At the end of *the Discussion section* or in a separate section, major conclusions should be drawn and the practical significance of the study should be emphasized.

Conclusions are shorter sections of academic texts, which usually serve two functions. The first is to summarise and bring together the main areas covered in the written discourse, and the second is to give a final comment or judgement on this. The final comment may also include making suggestions for improvement and speculating on future directions.

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4 English for Dentistry: Linguistic Features

4.1 Lexis

In the areas of general and applied linguistics, the term *vocabulary* has been studied by many linguists from different perspectives. So far, the role of specialist vocabulary has been examined considering various factors, such as the language competence and skills, required by the specified professional fields, typical frequency of words in operation, style expected to be used by the language users, and alike. Montgomery (2007: 122) distinguishes two types of vocabulary: *spoken vocabulary* (listening and speaking) and *written vocabulary* (reading and writing). The author emphasizes that language learning starts with the spoken vocabulary which underlies the development of the written vocabulary.

As concerns the nature of vocabulary, Nation (2006: 11-13) distinguishes four kinds of vocabulary. *High-frequency words* include function words, e.g., *in, for, the, a, of*, etc. and content words, e.g., *government, production*, etc. They cover a very large number of the vocabulary used in spoken and written texts. *Academic words* constitute the second kind of vocabulary and include many words that are common in different kinds of academic texts, e.g., *policy, phase*. *Technical words* constitute the third kind of vocabulary and comprise words that are very closely related to the subject area of the text; they differ from subject area to subject area, e.g. *regeneration, timber*. *Low-frequency words* ‘occur very infrequently and cover only a small proportion of the text’ (ibid: 19).

Besides, Nation (2006: 24- 30) sees the difference between the *receptive* vocabulary, which is recognizable by language users in area-related contexts, for example, in reading or in listening activities, and the *productive* vocabulary, which implies the language users’ ability to apply this vocabulary with accuracy and precision in spoken or written area-related contexts. The receptive vocabulary distinction depends on ‘the idea that we receive language input from others’. The productive vocabulary is ‘that we produce language forms by speaking and writing to convey messages to others’ (ibid: 24).

As to academic vocabulary, Olwyn et al. (2008: 154) divide it into three basic groups: a) *technical* vocabulary: terms that are specific to a particular discipline, which usually difficult to understand by non-specialists of the discipline, b) *semi-technical*

vocabulary: words or phrases in general use, which also might have a restricted, different or special meaning in specialist discourse, c) *general academic* vocabulary: words and phrases that represent academic register, or which signal rhetorical functions or special text organization features. This classification will be considered in further characteristics and the development of the approaches taken as concerns English for Dentistry (ED) vocabulary.

4.1.1 Approaches, Strategies and Techniques of Vocabulary Learning/Teaching

According to Anthony (in Celce-Murcia, 2001: 5), an *approach* is ‘something that reflects a certain model or a research paradigm’, while Richards et al. specify (1999: 154) that an ‘*approach* is the [...] theories about the nature of language and language learning which [...] provide a theoretical foundation’ for language acquisition.

Language learning *strategies* (Wenden et al., 1987: 6) include: a) language learners’ learning endeavours and their individual role in the language acquisition process, b) language knowledge and its proficiency.

Gu et al. (1996: 74) specify several groups of *language learning strategies*, such as: a) *metacognitive* strategies, which imply the learners’ knowledge of words, phrases, terms which form the basis for ‘adequate comprehension’ (ibid.), b) *memory* strategies, which are connected with the acquisition of word lists, word structures and their repetition, c) *activation* strategies, which are the learners’ ability to use the words in different communicative contexts and events.

As concerns *vocabulary learning strategies*, vocabulary learning is to focus either on a) *explicit* learning, which is related to a vocabulary recognition strategy (Williams, 1985: 124-131) or b) *implicit* vocabulary learning, which is focused on using the language for communicative purposes (ibid.).

Explicit vocabulary learning strategies involve: a) *inferring* vocabulary from context and doing lexical familiarization, b) *detecting* and unchaining nominal compounds, and synonym search, c) *drawing up* word families, word associations, and semantic mapping.

Implicit vocabulary learning strategies involve:

a) *guessing meaning* from context; this is ‘a key vocabulary learning skill for dealing with low-frequency vocabulary, particularly in authentic texts’ (Celce-Murcia, 2001: 291),

b) *mnemonic devices* ‘help to link a word form and its meaning and consolidate this linkage in memory’ (ibid.). Mnemonics is widely used by medical students to memorize terms,

c) *semantic associations*; this is the strategy that can be applied by medical students to work out the meaning of professional terms via such vocabulary learning activities as ‘making word maps, classifying words, finding opposites, suggesting associations, finding examples’ (Nation, 2006: 99),

d) *syntactic collocation* types (grammatical and lexical collocations) are applied differently in vocabulary learning; thus, ‘grammatical collocations are those in which a noun, verb or adjective frequently co-occurs with a grammatical item, usually a preposition’ (ibid: 293), while lexical collocations are ‘combinations of full lexical items, i.e., nouns, verbs, adjectives, and adverbs’ (ibid.). The competence of syntactic collocations and practising them in ED classrooms results in an increased term memorization rate and an in-depth understanding of the theme studied,

e) *lexical phrases* allow a creative construction of the language. They are phrases that are sufficiently fixed and can be found in a dictionary. The term *lexical phrases* includes all lexical items, idioms, proverbs and alike.

According to Celce-Murcia (2001: 296), ‘lexical phrases are important devices used to fulfil the ideational, interpersonal and textual functions in spoken and written discourse, and they are classified according to their functions in three groups: Social Interactions (e.g. greetings/closings, politeness/routines, requesting), Necessary Topics (e.g. language, time, location), and Discourse Devices (e.g. logical connectors, temporal connectors).

Cory (2006: 6) offers the definition of idioms: ‘idioms are phrases that are wholly or partially fixed (...) and cannot be understood from the usual meaning of the individual words they contain (e.g. *help yourself, mind your own business*)’.

4.1.2 Lexico-Grammatical Features of English for Dentistry

4.1.2.1 Syntactic Features of English for Dentistry

Several morpho-syntactic features can be observed in ED, such as:

1) *avoidance of phrasal verbs* (if it does not impact the meaning of the statement).

ED is precise with compressed sentences. It tends to avoid the use of phrasal verbs if they can be substituted by single verbs that carry synonymous meaning in dentistry area-related discourse. In this regard, ED demonstrates several typicalities, such as:

a) some prepositional phrases often have a tendency either to omit the prepositional adverbs such as *in*, *on*, *with* (e.g., *tooth neck irritation*: instead of *irritation in the tooth neck*),

b) omitting the phrases with *for+ gerund* or *+ noun* (e.g., *a dental operating room*: instead of *a room for carrying out dental operations*, *tartar control toothpaste*: *toothpaste for tartar control*, *sensitive tooth toothpaste*: *toothpaste for sensitive tooth control*, *smoker's toothpaste*, *whitening toothpaste*),

2) *expressive conciseness and pre-modification* (Maglie, 2009: 29- 40) make the statements in ED 'more condensed at a syntactic level and is characterized by the avoidance of relative clauses' (ibid.), e.g., *laboratory equipment-* equipment that is used in laboratories,

3) *avoidance of the combination the passive voice+ for+ gerund* is employed for the sake of syntactic structure simplicity and in favour of language economy, e.g., *sulcus absorbent material* – material which is used for absorbing sulcus),

4) *use of nominalization* (often carried out via a word derivational principle of *conversion*, i.e., the use of a noun instead of a verb); it is used to offer statements, express actions, e.g., *diagnosis* - *to diagnose*,) and *compound nominal phrases* are employed for concise referencing, discourse cohesion and coherence; the use of compound nominal phrases helps avoid long descriptions (e.g., *patient-related dental health history*, *anti-body dependent cell-mediated malformation*),

5) *use of verb and its tenses* (Maglie, 2009: 37-39) is characterized by an extensive use of reporting verbs, such as the cognition verbs (e.g., *believe*, *hate*, *know*, *like*,

enjoy, understand, want), the tentative verbs (e.g., *attempt, expect, desire, plan, try*), and the certainty verbs (e.g. *doubt, suggest, conclude*). As regards the use of the verb tenses, it is commonly admitted that the past simple tense in the active voice is used in reference to describing the results and to explaining methods (e.g., treatment methods) as well as in recommendation and conclusion sections/parts of the ED discourse,

6) *use of modal verbs and modality*: modal verbs are frequently used in ED in order to express the language functions of, e.g., suggestion, assertion, probability, possibility, obligation and necessity. As concerns the use of modality, it is a common knowledge that the application of epistemic and deontic modalities varies according to the linguistic functions and the pragmatic aim of the specified genre,

7) *use of the passive voice* in the ED discourse results in depersonalization that relates to the results or effects revealed.

4.1.2.2 Lexical Features of English for Dentistry

Adams-Smith (1984: 22) notes that the written mode of English for Medicine (EM) concentrates on discourse level items, such as, 'textualization and the use of various indefinite constructions which EM shares with its other domains'. These features can be applied to ED as well, it being the domain of EM. Consequently, the lexical features of ME having been determined by Lankamp (1988: 25) can be used for the analysis of lexical features of ED, and they are as follows:

a) *affixation* - a word derivational principle. ED presents a reasonably huge variety of prefix and suffix (usually of Greek or Latin origin) use, e.g., *hyperglycaemia*: an excessive level of sugar in blood, *glaucoma*: excessive eye pressure;

- ED applies an extensive number of *suffixes*, such as,
 - *-ics/ial* (to form adjectives from nouns): *prosthodontics, labial*,
 - *-logy* (knowledge of smth.): *pathology*,
 - *-itis* (inflammation): *gingivitis, periodontitis*,
- ED applies an extensive number of *prefixes*, such as, pertaining to:
 - *number and size*, e.g., *bi-* (two): *bifurcation*, *diplo-* (double): *diplopia*, *hemi/semi-* (half/part): *hemisphere*, hemisection of root, *hypo-* (less than): *hypodontia, hypotension, hypotension, hyper-* (greater than): *hyperplasia*,

- *fear*, e.g., *phobia-hematophobia, radiophobia, halitophobia, odontophobia* and alike.

b) *borrowing*: a word derivational principle. Borrowings form the basis of the ED terminology; they are usually of Greek or Latin origin (e.g., *in vivo, malocclusion*) or of Anglo-Saxon or Germanic origin (e.g., *blister, bruise*). As regards borrowings from Greek and/or Latin, they usually form the basis for technical vocabulary, i.e., terminology, and usually construct fully assimilated word forms that often do not have direct substitutes of Anglo-Saxon origin; they are used in Latin/Greek in ED, e.g., *edentate*: to leave somebody toothless, *fissure*: a narrow linear depression, *tubercle*: a small protuberance on the crowns of some teeth.

c) *compounds*: the use of compounds in ED is often based on the lexical forms of fixed and/or semi-fixed collocations. Compounds form a very significant layer of ED terminology; they can represent the types of *proper compounds*, e.g., *connective tissue, interdental papilla, multiple roots, lingual nerve*, or *compound phrases*, e.g. *pedal-controlled dental engine, three-in-one syringe, slow/low-speed handpiece, X-ray viewer, light-cured composites*.

c) *denotation* is a typical feature of the ED terms: it reveals one precise literal meaning of the notion. However, *connotation* is often used *to characterize*, e.g., symptoms of illness, *to identify* a patient's condition of health or subjective feelings (e.g., *dull, harsh toothache*), *to define* tooth functions, e.g., to determine the type of bruxism symptoms (i.e., *teeth clenching*) specific connotative verbs are used, such as *to clench* (to close mouth tightly), *to gnash* (to strike teeth together), *to grind* (to rub teeth), *to grit* (to clench), to specify techniques, e.g., in tooth brushing: *to scrub, to bass* (make circular movements), *to roll*.

d) *word shortenings*, such as *abbreviations* (e.g., *PTSD*: Post Traumatic Stress Disorder), *acronyms* (e.g. *CT*: Computerized Tomography) and *symbols* make a very significant part of ED terminology.

Acronyms are extensively used in dental radiology, e.g., *ALARA*: as low as reasonably achievable, *DPT*: dental panoramic tomography, *OCD*: extra dental picture. *Abbreviations* are extensively used to characterize, e.g., the history of a patient's medical and/or dental status, such as *MH*: general medical history, *DH*: dental history,

ED: extra-oral examination, *IO*: intra-oral examination, *MOD*: mesio-occlusodistal restoration.

Symbols and abbreviations, e.g., are used in charting. Charting makes a part of a patient's intra-oral examination in order to record the data on a special chart which reveal notes of teeth condition, such as “–”: tooth missing, “x”: recent extraction, “/”: to be extracted, “0”: cavity, or abbreviations, such as *NV*: tooth non-vital, *RCT*: completed endodontic treatment, *PJC*: porcelain jacket crown.

e) *synonyms* are used for a variety of purposes, e.g.:

- to construct patient-friendly communication, especially when interacting with young children or with patients having dentistry-related phobias, such as: instead of ‘*pain*’ the contextual synonym ‘*discomfort*’ is preferred, instead of ‘*drill*’ – ‘*prepare (tooth)*’, instead of ‘*extract*’- ‘*remove*’, instead of ‘*false teeth*’ - ‘*dentures*’, instead of ‘*filling*’- ‘*restoration*’;
- to reduce the use of dental terminology of Latin/Greek origin in a patient-dentist communication, synonymous terms of Anglo-Saxon origin are usually preferred, e.g. instead of ‘*transient*’- ‘*short-time*’ is preferred, instead of ‘*gingiva*’- ‘*gums*’ is preferred, instead of ‘*congenial*’- ‘*present from birth*’, instead of ‘*bacteraemia*’- ‘*presence of bacteria*’, instead of ‘*fracture*’- ‘*bone break*’.

g) *figures of speech* used in the ED discourse depart from the literal meaning of its lexis; still, they characterize ED including:

- *eponyms* are extensively used in ED a) to name instrumentation used in dental procedures, e.g. *Black's classification* (of cavities) *Meissner's forceps*, *Crowe-Dawis mouth gag* (an instrument for opening the mouth), b) to characterize some specific types of teeth, e.g. *Turner's tooth*, *Fournier's tooth*, c) to identify specific cases, e.g. *the tubercle of Carabelli*, *Halitosis* (bad breath),
- *conceptual metaphor* underlies the use of dental terminology in specialist communication, e.g., *milk tooth*, *bite mark*, *porcelain jacket crown*, *dragon breath* (lack of oral hygiene), *peg-shaped tooth* (a conical tooth), *tooth arch*, *tooth pocket*.

- *ellipsis* (i.e., leaving out one or more words that are not necessary to understand a phrase) ensures a sentence/statement density.

4.2 Lexical Approach

The lexical approach (LA) identifies lexis as the fundamental part of language, and, highlights the idea that language consists of grammaticalized lexis. From the perspective of applied linguistics and psycholinguistics, the LA works in favour of increasing learners' language accuracy and fluency. Lewis (1993) has positioned vocabulary acquisition in the central part of language teaching/learning because he argues that 'language consists of grammaticalized lexis, not lexicalized grammar'. Within the context of the LA, Schmidt (1990: 149) proposes a new concept of 'intake' and considers it to be a core factor in language acquisition: '*intake* is what learners consciously notice [...], noticing is meant to apply equally to all aspects of language (lexicon, phonology, grammatical form, pragmatics' (ibid.).

The LA determines lexis as a basis of language. It focuses on the idea that any language serves for grammaticalized, lexis-related use. The approach in foreign language acquisition is backed up by the theoretical contributions which point out the view that the language users' capacity for understanding and producing lexical phrases concerns the development of spoken and written language fluency. Many applied linguists, e.g. Lewis, 1993; Willis, 1990; Schmitt, 2000 support the idea that language learning and acquisition is directly related to storing and processing word patterns, lexical phrases, known as chunks, multi-word items, (also: sometimes called *polywords*), and institutionalized sentences. Moudraia (2001) makes a distinction between vocabulary understood as individual words having fixed meaning and lexis that also includes the word combinations stored in the language users' mental lexicons. Language acquisition in the LA highlights the principle that meaningful chunks, when combined, generate coherent output, which results in improved performance, increased accuracy and fluency in language production. Referring to Lewis (1993), Bareggi (2006: 2) states that the following principles underlie the lexical approach:

- Language consists of grammaticalized lexis, not of lexicalized grammar;

- The grammatical/vocabulary dichotomy is invalid; much language consists of multi-word chunks;
- A central element of language teaching is raising learners' awareness of, and developing their ability to "chunk" language successfully;
- Grammar as structure is subordinate to lexis;
- Successful language is a wider concept than accurate language;
- Lexis should be considered as one of the central organizing principles of any meaning-centered syllabus.

Thus, lexis is seen by Lewis not as a separate vocabulary list, but as a set of lexical items, most of which are multi-word chunks. Lexical items have the same generative power as grammar patterns, if not more. They allow the production of natural successful language. As a result, the LA is focused on developing the language skill of combining meaningful chunks in order to produce continuous and coherent text.

According to Lewis (1997), *four fundamental types of lexical items* may be defined.

Type 1: Words and Polywords (e.g., *by the way*, *according to*). *Words* have always been considered as independent language units. Single words may appear in speech or in writing as fully independent items (e.g., *Please. Sorry? Stop!*). *Polywords* are an extension of this category. The term 'polywords' is restricted to those phrases (usually short phrases) that have a degree of idiomaticity (e.g., *on the one hand*, *on the other hand*) and have usually appeared in even quite simple dictionaries.

Type 2: Word Partnerships known as collocations (e.g., *speech community*, *banking sector*). Some pairs of words or groups of words co-occur with a very high frequency, depending on the text-type. Most typically this feature is associated with:

- Verb-noun (e.g., *to raise funds*);
- Adjective- noun pairs (e.g., *a sustainable strategy*).

However, word partnerships can involve word groups larger than pairs, and they can apply to words from most grammatical categories.

Multi-word collocations are linear sequences of words. Typically, they are 3-5 words in length and are primarily concerned with referential content (e.g., *to raise venture capital*, *to dissolve mixture in water*).

Lewis (1997) marks that within the lexical approach special attention is to be directed to *collocations* and expressions that include institutionalized utterances, sentence frames and heads. Besides, collocations should be drawn special attention to because they can be:

- Fully fixed, known as *strong collocations* (e.g., *drug addict*);
- Semi- fixed; they can be completed in a relatively small number of ways (e.g., *learn by doing/by heart/by rote/from experience*).

Type 3: Institutionalised Utterances (e.g., *would you mind opening the window? I wish I were you*). They are more typical of the spoken than of the written mode of communication and tend to express pragmatic rather than referential meaning. They are all those chunks of language that are recalled as wholes and of which much conversation is made: they may be full sentences, usable with no variation and having identifiable pragmatic meaning (e.g., *I am off; It has nothing to do with me*). They may be sentence heads, which require another lexical item to establish a complete utterance (e.g., *If I were you, I would not overspend*). Institutional utterances should form a major element in the language input provided for language learners. Such language is the basis of natural language learning. Typically, institutional utterances contain a relatively high proportion of delexicalised words, such as *take, get, there*, which do not carry much meaning in them (e.g., *It'll take time, I'll get to you as soon as I can, I'll see what I can do, It'll be all right, That'll do, We'll see*). The expressions like the above mentioned ones deserve increased attention both because of their immediate usefulness and because they provide language input that serve as the basis for acquisition of generalizable language 'rules' of use.

Type 4: Sentence frames, heads, text frames (e.g., *this paper explores the lexical approach*). Sentence frames and heads are, to a large extent, the written equivalent of institutionalized utterances. They are those discourse features that allow the language user to decode complex written text. Examples of sentence frames are *That is not as...as you think, The fact was...* ; text frames - *This paper explores, Firstly..., Secondly..., Finally...* .

Within the lexical approach, special attention is directed to the acquisition of collocations and expressions that involve institutionalized utterances and sentence frames and heads. Lewis (1997) states: 'instead of words, we consciously try to think

of collocations, and to present these in expressions. Rather than trying to break things into ever smaller pieces, there is a conscious effort to see things in larger, more holistic, ways' (Lewis, 1997: 204).

Thus, the lexical approach deals with four types of lexical items; type 1 and type 2 are concerned with work on referential meanings of lexis; type 3 and type 4 are concerned with pragmatic meaning of utterance.

Development of balanced language learning/teaching materials has to take into account all four types: vocabulary acquisition should be ensured via the perspective of learning words and collocations; language functions should be mastered via institutionalised utterance and sentence frame perspectives.

Krashen and Terrell (1983) state that people acquire the language by understanding messages. Thus, it is to be pointed out that the primary purpose of the activities within the lexical approach is the awareness raising activities rather than formal teaching of vocabulary or specialist terminology. As a result, within the lexical approach, less attention is paid to individual words and their meanings; substantially less attention is paid to the acquisition of the traditional structures of grammar. On the contrary, much time is expected to be devoted to the acquisition of lexical items, such as collocations, which carry the referential meaning in written discourse. Similarly, much attention is to be paid to institutionalized utterances which carry the pragmatic meaning in naturally occurring utterances. Therefore, the learning/teaching strategies bear the nature of the *receptive* and *awareness raising language* acquisition practices instead of formal vocabulary teaching productive language ones.

As a result, the present project sees the lexical approach as the basis for specialist language acquisition within the framework of CLIL. From a psycholinguistic perspective, the lexical approach is linked to the language users' capacity of understanding and producing lexical phrases as non-analysed entities, known as chunks. Language awareness component is seen as an integral component of this approach.

From the perspective of CLIL, the lexical approach is seen as an aid to the acquisition of the professional domain related lexis, where the emphasis is put on language *intake*. When designing the basic types of exercises, several productive strategies or

practices can be used that can facilitate the acquisition of the operational vocabulary that underlies the dentistry domain related context. Considering Lewis' (1997: 89-107) strategies of the LA application, the following types of lexical exercises can be offered for the acquisition of ED:

1. Identifying chunks.
2. Matching and sequencing technical, semi-technical and general lexis.
4. Work with polywords, fixed expressions, and semi-fixed expressions, phrase matching.
5. Work with collocations: matching chunks, collocation transparencies.
6. Denotation, connotation, contextual synonymy.
6. Modalization and modulation.
7. Figures of speech patterns: conceptual metaphor, eponymy, metonymy.

The strategies selected are aimed at the organization of the ED lexicon and at the way how learners' mental lexicon can store and retrieve vocabulary for processing and output in relevant communicative events as regards dentistry domain related contexts.

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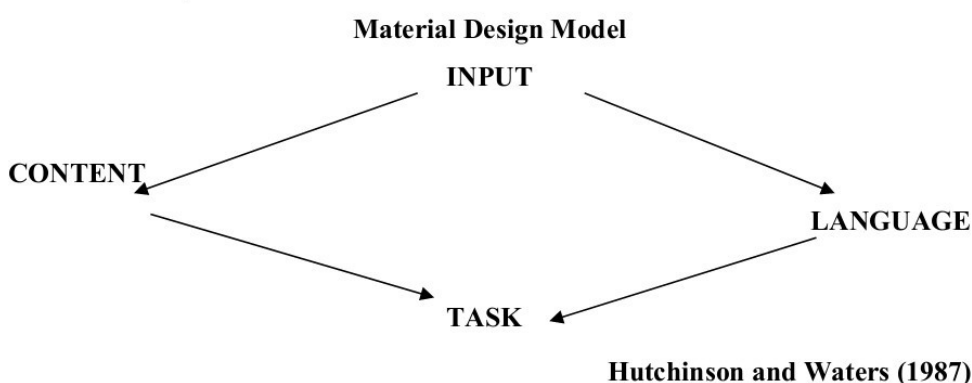
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5 Materials: Adapting and Scaffolding Materials

5.1 Adapting Materials

There are three ways of working with materials: 1) selecting materials from the existing ones: material evaluation; 2) writing one's own material: material development; 3) modifying existing material: material adaptation (Hutchinson and Waters, 1987). The authors (ibid.) have proposed a useful material design model, which can be represented as follows:



As it has been referred to in 3.2 of this *Guide*, work with reading materials can take different forms according to the students' needs. Within the CLIL context and with the focus on dentistry, information acquisition is usually the students' purpose of reading. Thus, the information extraction from specialist-area related authentic texts should be the primary focus of material selection, with language focus work becoming of a secondary importance. Consequently, it is to be admitted that would-be dentists could benefit significantly if they followed the TAVI approach in their studies and practised reading skills for gathering novice area-specifying information in line with developing their communicative language competences. In addition, to develop and enhance their awareness of discourse structure, to deepen the professional text comprehension, to broaden understanding of linguistic structures and their semantic and/or pragmatic meaning/s, the TALO approach can be applied to make the work with reading materials effective.

Therefore, the present *Guide* focuses on the use of mixed TAVI and TALO approaches when dealing with dentistry area-related texts.

Ferguson (in Paltridge and Starfield, 2013:261) suggests the following communicative activities based on authentic texts and tasks:

- *Simulated case conferences*: A course participant presents a case to the class of doctors (or alternatively the class may read the case report or listen to a recording and take notes). Groups or pairs then make differential diagnoses and suggest investigations/treatment. During the discussion the teacher takes notes on language difficulties for subsequent feedback and at the end presents the clinical solution from the source material (see Allwright and Allwright 1977).
- *Listen and report*: Paired or individual participants listen to a talk on a medical topic, take notes and report back to another pair who have heard a different talk.
- *Read and report*: Individual participants, or pairs, read a medical journal article, take notes and summarize what they have read for another pair with a different article.
- *Listening to a talk from a guest speaker doctor*.
- *Preparing and presenting short talks*: These may be based on a case, or on a medical topic the participant has previously researched. The teacher may record such talks for feedback purposes.
- *Doctor – patient role - plays*.
- *Medical English pronunciation practice in the language laboratory*.

5.1.1 Authentic Materials

According to McDonough and Shaw (1993), *authenticity* can be referred to as 'a term which loosely implies a close approximation to the world outside the classroom, in the selection both of language material and of the activities and materials used for practice in the classroom' (in Murdoch, 1999: 2). The use of authentic materials increases student participation in the learning process because the student 'is lifted from the confinements of traditional methodologies to become an intricate part of the [...] learning processes (ibid.). Barlow (1996) notes that by using authentic text data 'the learner is seen as a cognisor with the ability to make numerous cognitive distinctions' (in Murdoch, 1999: 5). Johns (1994) states that the students who are exposed to the use of authentic texts are offered opportunities to:

a) examine and discover relationships held with lexical items, b) recognize features of general and specialist lexicon, c) advance the inductive processes to analyse a wide range of profession-bound texts, d) determine the most frequently used language patterns used in the domain, e) obtain ‘authentic data’ that are essential for the domain so that the learner ‘can take part in building up his/her own profiles of meaning and uses’, (in Murdoch, 1999: 10).

As a result, the use of authentic materials can be considered a significant resource for promoting the students’ inductive learning strategies that, in their turn, underlie the principles of communicative view on language. Richards and Rodgers (1986: 71) specify that: a) language is the system for expressing meaning, b) language functions for interactional purposes, c) the structure of language reflects its functional application in context, d) ‘the primary units of language are [...] categories of functional and communicative meaning as they are used in a particular discourse’(ibid.).

Considering the above discussion, the present *Guide* sees the academic value of accommodating dentistry domain related materials in the CLIL approach. Authentic materials used in the course design focus on real-life professional situations and cases. They recreate real workplace contexts and promote the would-be dentists’ awareness of the intertextual and multimodal characteristics of everyday communication in the workplace. They incorporate a skill set that is required to function effectively in the workplace using English for Dentistry, including the language users’ ability and competence to establish professional business relationships both with colleagues and patients across cultures in order to be fluent not only in the traditional dentistry related genres but also in emerging genres and media.

The Guide emphasises the selection of the authentic materials that create such a communicative environment which can be adapted to would-be-dentists’ and clinical dentists’ communities. By mirroring the communicative events being characteristic of the professional domain, the material application can foster the language users’ functional competence in English for Dentistry and enhance their fluency and accuracy of the professional language in use.

With the focus on authentic material selection and for the purposes of the course material design in order to satisfy dentistry-domain requirements, *the Guide* is concerned with the below mentioned strategies:

- a) the data results obtained from the administered needs analysis survey, which reflects communication audit results obtained from dentistry area-related respondents,
- b) corpus-based studies of the professional language and dentistry-related genres that specify the need to use the language in real-life contextual and professional situations,
- c) selecting and adapting materials extracted from text books that concern the areas specified in the ERASMUS+ project proposal.

For the purposes of the course material design, some alterations in authentic texts should be made, such as shortening the text, selecting relevant information from the text, and alike. However, any of these strategies can be applied if they can be justified in relation to the learning needs of would-be dentists. Several types and sources of authentic materials can be used, such as:

- a) authentic written and spoken texts; they exemplify the particular genre and register use; they contain typical text organizational features, reveal sentence or lexical patterns, present a rich variety of specific terminology in use. The language used in authentic texts reflects the genuine purpose for which the materials have been drawn up and they target the reader- be it a specialist or a would-be specialist. These texts include the type of the language which the students may need to be exposed to in order to broaden the skills for comprehension and language production;
- b) materials (e.g., research articles) that report on new information about the latest research results in dentistry; they are highly beneficial for the students majoring in dentistry because they reflect the latest contributions to dentistry, real-life cases, and situations as well as provide specified case-related solutions. It is the content of the material rather than the language which is beneficial for both the student and the knowledge provider: the information made available is likely to be very accurate; it has a high level of credibility; thus, it can be considered as more up-to-date than classical text books on dentistry.

There is a rich variety of ways how authentic materials can be incorporated into a study course; for example, they can: a) provide a realistic situational context for role plays and case simulations, b) develop the skills of drawing up a patient treatment

plan, c) stimulate patient's interviewing, d) practise the skills of describing, explaining, instructing and exchanging information between a patient and a specialist.

5.1.2 Selection and Exploitation of Authentic Materials

When selecting the authentic materials to use, it is vital to focus on three core issues, such as: a) who the material is intended for: a general dentist, a hygienist, an orthodontist, a periodontist, b) what the training purpose is, c) how the material can be/will be exploited.

5.1.2.1 Specialist Text Materials

Specialist text materials provide the best model of authentic written language; thus, the use of text materials can be seen in relation to students' needs. Depending on the text content, the TAVI approach can be followed to focus on gathering the area related information. Besides, the TALO approach can ensure the language activities that focus on general and professional vocabulary acquisition, on enhancing students' linguistic competence.

Specialist text materials can be exploited and adapted to be used as:

- a) information content,
- b) a device for a role play or simulation via the use of facts, figures, case studies,
- c) a device for information-transfer activities (e.g. dental charts),
- d) jigsaw reading: the text is divided into parts and different parts are handed out to different students to do reading and note taking; the students cooperate to build up the summary of the complete text,
- e) discussion and debate practice to forecast and/or predict the possible treatment results or outcomes, to make comparisons of the individual treatment approaches prioritised in specified dental cases.

Tomlinson (2005:288-291) provides a set of procedures that can be used for text adaptation purposes:

Expansion

- add one or more sentences/paragraphs to the beginning and end of the text
- add specified items within the text (e.g. adjectives)
- add sentences within the text

Reduction

- remove specified items
- combine sentences
- remove sentences, clauses

Media Transfer

- transfer it into visual (e.g. pictures, graphs, maps)
- turn prose into poem
- turn a letter into a newspaper article

Matching

- match text with a visual representation
- match text with a title
- match text with another text

Selection / Ranking

- choose the best text for a given purpose
- choose the most/ least difficult, format, personal, complex text
- choose the text most/least like the original version

Comparison / Contrast

- identify words/ expressions common to both texts
- identify ideas common to both texts
- compare grammatical / lexical complexity

Reconstruction

- insert appropriate words/phrases into gapped texts
- reorder jumbled words, lines, sentences, paragraphs, etc.
- remove sentences/ lines which do not “belong” in the text

Reformulation

- retell a story from notes/ memory
- use key words to rewrite a text
- rewrite in a different style/mood

Interpretation

- draw parallels between personal experience and the text
- write associations connected with the text
- describe images that the text reveals

Creating Text

- write a parallel text on a different theme
- use the same outline to write a new text
- add lines to reshape it

Analysis

- analyze the tenses used in the text
- list the different ways in which the word “x” is referred to in the text

Project Work

- use the text as a centerpiece for an advertising campaign

- design a questionnaire on the problem mentioned in the text
- prepare a brief magazine article, etc.

Different specialist texts relevant to the area of dentistry can be considered. Depending on the group of learners, on their background in dentistry and in medicine, teaching and learning purposes, types of activities to be developed, skills and competences to be established, dentistry-area related books, articles from journals on dentistry or medicine are useful both for students with hands-off and hands-on experience.

The following skills can be established if the above mentioned sources are used as authentic materials: a) skills (reading: skimming/scanning, gist reading, detailed reading, summarizing, information exchange, discussion, writing the history of the patients' oral and dental state, which results in the skills of developing a definitive, differential or provisional diagnosis, b) language: general vocabulary, terminology, grammar structures (e.g., forecasting and predicting, referencing), c) implementation activities: information transfer, simulations, role plays, and jigsaw reading.

5.1.2.2 Charts, Pictures, Diagrams

Authentic charts, pictures, and diagrams are efficient sources for expanding language production skills. These visual materials are commonly applied by practitioners to reveal medical data and/or treatment results. Visual authentic materials are important for pre-experienced dentists as well. The following skills can be established if visual data are used: a) skills: presenting information, information exchange, listening, b) language: presenting facts and figures, distinguishing facts from opinions, describing trends and tendencies, contrasting and comparing, describing cause-effect, c) activities: pair/group work, information transfer.

5.1.2.3 Audio and Video Materials

Authentic audio and/or video materials are important resources because the majority of communication is carried out via the spoken mode. Spoken language produced spontaneously involves non-syntactical language forms of orality, such as gap-fillers, pauses and alike. It highlights interactional and transactional exchanges and often

presents typical features of authentic social and/or professional intercourse. Thus, authentic spoken texts in classroom may equip the students with the skills to cope with communicative situations and/or conversations outside the classroom, which may increase the motivation and eagerness to communicate the domain-related information in the English language.

5.2 Scaffolding Materials

The concept scaffolding, associated with Vygotsky's socio-cultural theory of learning, in CLIL classes is important, as the application of this principle assists students to achieve their learning goals. It is applied to refer to the design of classroom learning activities by making them manageable to the students through sequencing/scaffolding the types of genres they need to use and the registers or the aspects of the language they need to construct knowledge in dentistry.

Lecturers should provide 'exposure to input at a (just) challenging level, meaning-focused processing, form-focused processing, output production, and the use of compensation strategies' (de Graaff et al., 2007: 605). Novotná et al. (2001: 126) contend that lecturers should:

- show an understanding of the amount and type of content language s/he should use during the lesson;
- contextualize new content language items and present them in a comprehensible manner combining both auditory and visual stimuli;
- break tasks down into their component parts and issue instructions for each part at a time;
- teach thinking skills and learning strategies and highlight new material using advance organizers;
- cluster content material whenever possible and frame it by relating it to past classroom or personal experience;
- show an understanding of and sensitivity to individual learners' needs;
- build their interdependence in both content and language;
- encourage cooperative learning as peer support. (Novotná et al., 2001: 126)

5.3 Virtual Learning Materials

A Virtual Learning Environment (VLE) is an online environment, where learning materials are delivered to students via the web. It allows students to access and interact with teaching materials delivered in the open source Moodle virtual learning

environment irrespective of time or place, and different communication tools are used to support and facilitate students' learning.

The main advantage of VLE seems to be the opportunity to provide students with interactive subject content. This can include lecture support notes, reading lists, assessment tools, online communication, online student groups to foster group work.

Information can be delivered in various ways, for instance, documents can be uploaded, content can be delivered as links to other websites containing relevant information, and multimedia files, such as pictures, video, and sound can be added to the VLE.

Case-based discussions and interactive lessons can be used as activities, for example, asynchronous (e.g. forum) discussions and synchronous (the chat room) discussions; quizzes can be used, for example, after a reading assignment, to allow students to self-assess their own learning.

Assessment includes an opportunity to upload projects and other assignments for grading. Quizzes can be used as a formative tool by students and lecturers as summative assessments at the end of some unit and end of the course.

- student-to-student and student-to-teacher interaction,
- online quizzes with feedbacks offered,
- use of video material which considers patients' consent and confidentiality issues,
- web information and/or loading reference texts, which will enhance an evidence-based approach to practice,
- imaging technology, which will familiarize the learners/language users with how to 'read' and/or deal with the dentistry-area related output.

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Appendix

| Health History Form | | | | ADA American Dental Association® America's leading advocate for oral health | |
|---|-----------------------------------|---------------|--|--|--|
| Email: | | Today's Date: | | | |
| As required by law, our office adheres to written policies and procedures to protect the privacy of information about you that we create, receive or maintain. Your answers are for our records only and will be kept confidential subject to applicable laws. Please note that you will be asked some questions about your responses to this questionnaire and there may be additional questions concerning your health. This information is vital to allow us to provide appropriate care for you. This office does not use this information to discriminate. | | | | | |
| Name: Last First Middle | Home Phone: Include area code () | | Business/Cell Phone: Include area code () | | |
| Address: Mailing address | City: | | State: Zip: | | |
| Occupation: | Height: | Weight: | Date of Birth: | Sex: M F | |
| SS# or Patient ID: | Emergency Contact: | Relationship: | Home Phone: Include area code () | Cell Phone: Include area code () | |
| If you are completing this form for another person, what is your relationship to that person? | | | | | |
| Your Name | | Relationship | | | |
| Do you have any of the following diseases or problems: | | | (Check DK if you Don't Know the answer to the the question) | | Yes No DK |
| Active Tuberculosis | | | | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| Persistent cough greater than a 3 week duration | | | | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| Cough that produces blood | | | | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| Been exposed to anyone with tuberculosis | | | | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> |
| If you answer yes to any of the 4 items above, please stop and return this form to the receptionist. | | | | | |
| Dental Information For the following questions, please mark (X) your responses to the following questions. | | | | | |
| Yes No DK | | | Yes No DK | | |
| Do your gums bleed when you brush or floss? | | | Do you have earaches or neck pains? | | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | |
| Are your teeth sensitive to cold, hot, sweets or pressure? | | | Do you have any clicking, popping or discomfort in the jaw? | | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | |
| Is your mouth dry? | | | Do you brush or grind your teeth? | | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | |
| Have you had any periodontal (gum) treatments? | | | Do you have sores or ulcers in your mouth? | | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | |
| Have you ever had orthodontic (braces) treatment? | | | Do you wear dentures or partials? | | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | |
| Have you had any problems associated with previous dental treatment? | | | Do you participate in active recreational activities? | | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | |
| Is your home water supply fluoridated? | | | Have you ever had a serious injury to your head or mouth? | | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | |
| Do you drink bottled or filtered water? | | | Date of your last dental exam: | | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | What was done at that time? | | |
| If yes, how often? Circle one: DAILY / WEEKLY / OCCASIONALLY | | | Date of last dental x-rays: | | |
| Are you currently experiencing dental pain or discomfort? | | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | |
| What is the reason for your dental visit today? | | | | | |
| How do you feel about your smile? | | | | | |
| Medical Information Please mark (X) your response to indicate if you have or have not had any of the following diseases or problems. | | | | | |
| Yes No DK | | | Yes No DK | | |
| Are you now under the care of a physician? | | | Have you had a serious illness, operation or been hospitalized in the past 5 years? | | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | |
| Physician Name: Phone: Include area code () | | | If yes, what was the illness or problem? | | |
| Address/City/State/Zip: | | | | | |
| Are you in good health? | | | Are you taking or have you recently taken any prescription or over the counter medicine(s)? | | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | |
| Has there been any change in your general health within the past year? | | | If so, please list all, including vitamins, natural or herbal preparations and/or dietary supplements. | | |
| <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | | | | | |
| If yes, what condition is being treated? | | | | | |
| Date of last physical exam: | | | | | |
| | | | | | |
| | | | | | |
| © 2012 American Dental Association Form 3500 | | | | | |

Health history form, front size (Stefanac, S.J. and Nesbit, S.P., 2015:7)

Medical Information

Please mark (X) your response to indicate if you have or have not had any of the following diseases or problems.

(Check DK if you Don't Know the answer to the question)

Do you wear contact lenses?

Yes No DK

Joint Replacement.

Have you had an orthopedic total joint (hip, knee, elbow, finger) replacement?

Date: _____ If yes, have you had any complications?

Are you taking or scheduled to begin taking an antiresorptive agent (like Fosamax[®], Actonel[®], Atevia, Boniva[®], Reclast, Prolia) for osteoporosis or Paget's disease?

Since 2001, were you treated or are you presently scheduled to begin treatment with an antiresorptive agent (like Aredia[®], Zometa[®], XGEVA) for bone pain, hypercalcemia or skeletal complications resulting from Paget's disease, multiple myeloma or metastatic cancer?

Date Treatment began: _____

Allergies.

Are you allergic to or have you had a reaction to To all yes responses, specify type of reaction.

Local anesthetics

Aspirin

Penicillin or other antibiotics

Barbiturates, sedatives, or sleeping pills

Sulfur drugs

Codeine or other narcotics

Yes No DK

Do you use controlled substances (drugs)?

Do you use tobacco (smoking, snuff, chew, bids)?

If so, how interested are you in stopping?

Circle one: VERY / SOMEWHAT / NOT INTERESTED

Do you drink alcoholic beverages?

If yes, how much alcohol did you drink in the last 24 hours?

If yes, how much do you typically drink in a week?

WOMEN ONLY Are you:

Pregnant?

Number of weeks: _____

Taking birth control pills or hormonal replacement?

Nursing?

Yes No DK

Please mark (X) your response to indicate if you have or have not had any of the following diseases or problems.

Artificial (prosthetic) heart valve

Previous infective endocarditis

Damaged valves in transplanted heart

Congenital heart disease (CHD)

Unrepaired, cyanotic CHD

Repaired (completely) in last 6 months

Repaired CHD with residual defects

Yes No DK

Except for the conditions listed above, antibiotic prophylaxis is no longer recommended for any other form of CHD.

Cardiovascular disease

Angina

Arteriosclerosis

Congestive heart failure

Damaged heart valves

Heart attack

Heart murmur

Low blood pressure

High blood pressure

Other congenital heart defects

Mitral valve prolapse

Pacemaker

Rheumatic fever

Rheumatic heart disease

Abnormal bleeding

Anemia

Blood transfusion

If yes, date: _____

Hemophilia

AIDS or HIV infection

Arthritis

Yes No DK

Autoimmune disease

Rheumatoid arthritis

Systemic lupus erythematosus

Asthma

Bronchitis

Emphysema

Sinus trouble

Tuberculosis

Cancer/Chemotherapy/Radiation Treatment

Chest pain upon exertion

Chronic pain

Diabetes Type I or II

Eating disorder

Malnutrition

Gastrointestinal disease

G.E. Reflux/persistent heartburn

Ulcers

Thyroid problems

Stroke

Glaucoma

Hepatitis, jaundice or liver disease

Epilepsy

Fainting spells or seizures

Neurological disorders

If yes, specify: _____

Sleep disorder

Do you snore?

Mental health disorders

Specify: _____

Recurrent Infections

Type of infection: _____

Kidney problems

Night sweats

Osteoporosis

Persistent swollen glands in neck

Severe headaches/migraines

Severe or rapid weight loss

Sexually transmitted disease

Excessive urination

Yes No DK

Has a physician or previous dentist recommended that you take antibiotics prior to your dental treatment?

Name of physician or dentist making recommendation: _____ Phone: Include area code () _____

Do you have any disease, condition, or problem not listed above that you think I should know about?

Please explain: _____

NOTE: Both doctor and patient are encouraged to discuss any and all relevant patient health issues prior to treatment.

I certify that I have read and understand the above and that the information given on this form is accurate. I understand the importance of a truthful health history and that my dentist and his/her staff will rely on this information for treating me. I acknowledge that my questions, if any, about inquiries set forth above have been answered to my satisfaction. I will not hold my dentist, or any other member of his/her staff, responsible for any action they take or do not take because of errors or omissions that I may have made in the completion of this form.

Signature of Patient/Legal Guardian: _____ Date: _____

Signature of Dentist: _____ Date: _____

FOR COMPLETION BY DENTIST

Comments: _____

Health history form, back size (Stefanac, S.J. and Nesbit, S.P., 2015:7)

| UNIVERSITY SCHOOL OF DENTISTRY | | | | | | | | |
|--|-------|---------|---------|------------------|---------------------------|---------------|-------------|----------------|
| Draft Treatment Plan | | | | | | | | |
| Patient: Ilior Ilior (781952) | | | | | | | | |
| Phase | Tooth | Surface | Code | Provider | Description | Patient | Insurance | Total Estimate |
| Disease Control Treatment | | | | | | | | |
| 1:0 | 30 | MO | D2150 | Stefanac, Stephe | Amal 2Surf Prim or Perm | 0.00 | 0.00 | 0.00 |
| 1:0 | 31 | MO | D2150 | Stefanac, Stephe | Amal 2Surf Prim or Perm | 0.00 | 0.00 | 0.00 |
| 1:1 | | | D1110 | Stefanac, Stephe | Adult Prophyl | 0.00 | 0.00 | 0.00 |
| 1:2 | 3 | MOL | D2160 | Stefanac, Stephe | Amal 3Surf Prim or Perm | 0.00 | 0.00 | 0.00 |
| 1:2 | 13 | MOD | D2160 | Stefanac, Stephe | Amal 3Surf Prim or Perm | 0.00 | 0.00 | 0.00 |
| 1:2 | 18 | MO | D2150 | Stefanac, Stephe | Amal 2Surf Prim or Perm | 0.00 | 0.00 | 0.00 |
| Estimated Fee for this Phase: | | | | | | \$0.00 | 0.00 | \$0.00 |
| Corrective Treatment | | | | | | | | |
| 2:1 | FM | | D5986C | Stefanac, Stephe | Home Bleaching (2arches) | 0.00 | 0.00 | 0.00 |
| 2:2 | 7 | F | D2962 | Stefanac, Stephe | VenrPorcLamntLab | 0.00 | 0.00 | 0.00 |
| 2:2 | 8 | F | D2962 | Stefanac, Stephe | VenrPorcLamntLab | 0.00 | 0.00 | 0.00 |
| 2:2 | 9 | F | D2962 | Stefanac, Stephe | VenrPorcLamntLab | 0.00 | 0.00 | 0.00 |
| 2:2 | 10 | F | D2962 | Stefanac, Stephe | VenrPorcLamntLab | 0.00 | 0.00 | 0.00 |
| 2:3 | H | F | D2330 | Stefanac, Stephe | Anterior Resin 1 | 0.00 | 0.00 | 0.00 |
| Estimated Fee for this Phase: | | | | | | \$0.00 | 0.00 | \$0.00 |
| Maintenance Treatment | | | | | | | | |
| 3:1 | 19 | D | D0170WS | Stefanac, Stephe | Observe Tooth Surface N/C | 0.00 | 0.00 | 0.00 |
| Estimated Fee for this Phase: | | | | | | \$0.00 | 0.00 | \$0.00 |
| Estimated Total Fee: | | | | | | \$0.00 | 0.00 | \$0.00 |
| <p>I consent to begin the procedures listed above. I have had an opportunity to have the proposed procedures and alternative treatments explained to me, including risks and potential complications. Any questions I have concerning the proposed treatment have been answered to my satisfaction.</p> <p>I understand that the fees listed on this treatment plan are only an estimate of my costs. Additional charges will be made for unforeseen changes in the treatment plan. I understand that the School of Dentistry fees change annually and I will be charged current fees at the time service is rendered. I understand that some services as indicated above may not be covered or may require pre-authorization by my dental plan. If I or my dependent choose to obtain any non-covered services, I agree to be personally responsible for paying the School of Dentistry's charges for these services.</p> | | | | | | | | |

Active treatment plan (Stefanac, S.J. and Nesbit, S.P., 2015:118)

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| <p>BENEFICIARY</p> <p>Latvijas Universitāte Raiņa bulv. 19 Rīga, Latvia http://www.lu.lv Faculty of Humanities, Centre for Applied Linguistics; Faculty of Medicine</p> <p>PROJECT PARTNERS</p> <p>STICHTING VU DE BOELELAAN 1105 Amsterdam, the Netherlands www.vu.nl Academic Centre for Dentistry Amsterdam, Department of Preventive Dentistry e.zaura@acta.nl</p> <p>Centre for Intercultural Studies ISCAP-IPP Rua Jaime Lopes Amorim 4465-004, S. Mamede Infesta, Portugal www.iscap.ipp.pt/cei clarasarmiento@gmail.com</p> | <div data-bbox="794 383 927 555"></div> <div data-bbox="932 412 1267 544"> <p>LATVIJAS UNIVERSITĀTE ANNO 1919</p> </div> <div data-bbox="810 685 1251 819"> <p>ACADEMISCH CENTRUM TANDHEELKUNDE AMSTERDAM</p> <p>ACTA GUSTAV MAHLERLAAN 3004 1081 LA AMSTERDAM</p> </div> <div data-bbox="798 965 900 1043"></div> <div data-bbox="912 965 1054 1043"> <p>INSTITUTO SUPERIOR DE CONTABILIDADE E ADMINISTRAÇÃO DO PORTO</p> </div> <div data-bbox="1054 960 1211 1061"></div> |
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Project website: <http://paol.iscap.ipp.pt/erasmusendement/>

