

***Languages For Specific Purposes in the Digital Era***

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**M<sup>a</sup> Dolores Castrillo de Larreta-Azelain**  
**Universidad Nacional de Educación a Distancia**  
**mcastrillo@flog.uned.es**

The study of the integration of information technology (hereafter, IT) in languages for specific purposes (hereafter, LSP) has been rather limited despite the affordances of digital technologies for the development of LSP research, teaching and learning. As Arnó states in the first chapter of this book, this new relationship between IT and languages for specific purposes caused by the progressive internationalization of academic and professional settings and the growth of computer-based communication, merits detailed analysis. This publication fills this gap and contributes to a much-needed strain of research on LSP by presenting a state-of-the-art of technological and methodological innovation in the teaching and processing of specialized linguistic domains, including approaches that will help to shape the future of Computer Assisted Language Learning (hereafter, CALL) and LSP research, teaching and learning.

This book is the fifteenth volume in a Springer series named Educational Linguistics that focuses on innovative studies of language use and language learning. The target audience is anyone working in the area defined by the application of technology to the processing and learning/teaching of natural languages, in restricted or specialized professional and academic contexts: scholars, researchers, postgraduate and graduate students, and faculty in teacher education and applied linguistics programs, teachers, teacher trainers, teacher trainees, curriculum and materials developers, testers and evaluators, and others who are interested or merely curious about the field.

The publication is divided into four parts, each of them containing 4 chapters: Part I General Issues About Learning Languages with Computers, Part II Computer-Assisted Experiences for the Development of Language Competences and Skills, Part III Corpus-Based Approaches to/Applications for Teaching and Processing Languages and Part IV Processing Natural Languages.

In the first part of the book general issues about learning languages with computers are explored. Arnó presents in the first chapter, Information Technology and Languages for Specific Purposes in the EHEA: Options and Challenges for the Knowledge Society, an

insightful review of the impact of computing technology on LSP. She analyses different technological applications in order to identify how they can be integrated in LSP teaching to help students cope with the demands of academic and professional communication in a globalized context. The paper begins with a general overview of the role of IT in LSP, based on the definition of 'languages for specific purposes' and theories of language and learning. In the second chapter, *Fostering Learner Autonomy in Technology-Enhanced ESP Courses*, Gimeno exposes the pedagogical implications of a number of technology-enhanced language learning initiatives aimed at increasing learner autonomy. A modern language classroom is claimed and argued to scaffold the observational, exploratory and productive skills that language students need to develop. The third chapter, *The I-AGENT Project: Blended Learning Proposal for Professional English Integrating an AI Extended Version of Moodle with Classroom Work for the Practice of Oral Skills*, by Martín and Talaván, presents an adaptive blended learning approach developed in the I-AGENT project, a complete system that real instructors can use to integrate collaborative online work via Moodle and F2F (face to face) classroom lessons, where oral skills can be practiced in a natural communicative environment. It details an Artificial Intelligence based module for Moodle that provides online student scaffolding to an overall blended learning methodology by adapting course content to student progress. The last chapter of Part I, *Student Assessment in the Online Language Learning Materials Developed and Delivered Through the InGenio System*, by Sevilla, Martínez-Sáez and de Siqueira, focuses on assessment and provides an analysis of the assessment process of basic language skills, exploring the flexible way in which an online course contributes to the efficiency of such a process in both student self-assessment and tutor-based assessment.

Part II of the publication deals with the description and analyses of a set of four computer assisted experiences for the development of language competences and skills. In the first chapter, *Internet Dictionaries for Teaching and Learning Business English in Spanish Universities*, Fuertes defends that free Internet specialized dictionaries can be used for pedagogical purposes providing that they satisfy three basic requirements of pedagogical specialized lexicography, and illustrates the view taken on vocabulary support for independent online reading. The author claims that Internet specialized cognitive and communicative dictionaries are potentially efficient pedagogical reference tools for understanding the basics of the subject field and communicating in standard business situations. The second chapter, *Moodle Glossary Tasks for Teaching Legal English* by Breeze, describes the design and implementation of two collaborative legal glossary writing tasks as part of a university legal English course, and provides an analysis of the procedure and outcomes. Breeze presents the collaborative creation on an online legal

English glossary in Moodle. The third chapter, *Promoting Specialized Vocabulary Learning Through Computer-Assisted Instruction* by Perea-Barberá and Bocanegra-Valle, focuses on the teaching and learning of specialized vocabulary through information and communication technology (hereafter, ICT) in general and, more precisely, on computer-supported teaching and learning of Maritime English (ME) vocabulary. The authors claim that enhancing ESP courses with computer-based technology fosters learners' collaborative work and raises awareness of self-direction. Furthermore, they also discuss the main lines of research within the field of vocabulary learning with particular attention to the relation between computer-assisted reading instruction and vocabulary retention, the contribution of electronic dictionaries/glossaries as opposed to paper dictionaries/glossaries, and computer-enhanced ESP courses with particular reference to specialized vocabulary development. Finally, in the fourth chapter of Part II, *A Practical Application of Wikis for Learning Business English as a Second Language*, Rodríguez-Arancón and Calle-Martínez present the use of wikis for learning Business English as a Second Language. This particular study focuses on the use of wikis as they provide the teacher with information about the development process of the task performed by the students, allowing for the evaluation of the whole process of knowledge construction. In their study the authors present a proposal for innovation, attending to the needs of students aiming to improve the processes for mastering their English in the business sphere. The results of the pilot study demonstrate an above average success rate supporting the efficiency of wikis.

Part III deals with corpus-based applications for teaching and processing languages. In the first chapter, *A Genre-Based Approach to the Teaching of Legal and Business English: The GENTT Specialized Corpus in the LSP Classroom*, Borja, Juste, Ordóñez and Conde analyze the impact of corpora on LSP teaching and present their research based on a corpus of specialized genres developed by them. The authors also discuss how LSP teachers and learners can efficiently exploit this corpus as textual, conceptual, linguistic and terminological references. They demonstrate that this approach contributes significantly to the development of autonomous learning, enabling students to identify the characteristic patterns of each genre, thereby increasing their capacity for performing critical analysis and decision-making. The second chapter, *Innovative Methods for LSP-Teaching: How We Use Corpora to Teach Business Russian*, by Wilson, Sharoff, Stephenson and Hartley contributes to the literature on the application of corpora in language learning and teaching and, more specifically in Foreign Language Teaching and in LSP domains, by showcasing the work of the authors, both from a technological perspective to enhance possibilities for manipulating corpora for pedagogical purposes and from a pedagogical

perspective to develop materials to utilize the technology more fully. The research describes a corpus-based approach to teaching business Russian, which involves the enhancement of existing corpus-based tools to facilitate vocabulary acquisition and register identification. They demonstrate that corpora can facilitate the work of both tutors and their students and they can be used to create materials for highly specialized subjects, on current affairs and to meet the needs of the individual learner. In the third chapter, Automatic specialized vs. non-specialized text differentiation: the usability of grammatical features in a Latin multilingual context, Cabré, da Cunha, San Juan, Torres-Moreno and Vivaldi, propose a tool for the differentiation between specialized vs. plain texts, that can be easily and systematically applied to any number of them and uses corpora and machine learning techniques and association rules based on both lexical and grammatical features. The results of this research could be considered as a new perspective on subjects like terminology, specialized discourse and natural Language processing (hereafter, NLP) tasks and has direct applications in the automatic compilation of search engines, the automatic summarization of specialized documents and the automatic building of LSP corpora. In the fourth chapter, Laursen and Arinas' Exploring the potential of corpus use in translation training: new approach for incorporating software in Danish translation course design, demonstrate how functional lexicography can provide more accurate information through the use of corpus analysis and considering the purpose and speaker-reader relationship in the genre analyzed. Furthermore, they present some examples of how corpus-based dictionaries for specialized translation should be organized. The chapter discusses how to combine functional translation strategies with the use of concordance software and genre analysis in specialized translation training.

The book's last part includes research on special issues of NLP excluding the last chapter, that contains a reflection on the future of Technology-Mediated LSP, Research and Education. In the first chapter, Representing environmental knowledge in EcoLexicon, by Faber, León and Reimerink, a multilingual terminological knowledge base on the environment as a rich and internally coherent database covering specialized conceptual and linguistic information is presented. The authors aim to demonstrate that the internal coherence at all levels of a dynamic knowledge representation shows that even complex domains can be represented in a user-friendly way. They show how to combine the advantages of a relational database, allowing for a quick deployment and feeding of the platform, and an ontology, enhancing user queries: They also introduce reconceptualization to represent the dynamic and multidimensional nature of concepts and terms. The second chapter, New approaches to audiovisual translation: the usefulness

of corpus-based studies for the teaching of dubbing and subtitling, by Rica, Albarán and García Riaza, contains the presentation of an interdisciplinary study by blending AVT and Corpus Linguistics and showing one of the potential possibilities they offer. They show that Corpus-based studies constitute a fairly new approach to the study of the audiovisual text. In the third chapter, Pareja's The pragmatic level of OntoLingAnnot's ontologies and their use in pragmatic annotation for linguistic applications, the author exposes the pragmatic annotation of the OntoLingAnnot annotation framework focusing on its pragmatic categories, which are included as concepts and instances of its ontologies. The work presented is evaluated using the following six criteria: linguistic coverage, degree of formalization, ontological gap-filling, scalability, extensibility, interoperability, standard compliance and usability. The framework is the first ontological (and, hence, computable) conceptualization of Pragmatics thus far and, hence, it is an important contribution to the areas of Ontological Engineering, Pragmatics and Linguistic Annotation. In addition, this approach is also scalable, extensible, interoperable, standard compliant and highly (re)usable. In the last chapter of the book, Arús, Bárcena and Read reflect on the future of Technology-Mediated LSP, Research and Education, introducing relevant future trends: Web 2.0, open educational resources (OER) and practices like Massive Open Online Courses (MOOCs), gamification, and mobile and augmented learning using devices and applications.

The book's overall goal of presenting the state-of-the-art of technological and methodological innovation in the teaching and processing of specialized linguistic domains is certainly achieved. The 16 chapters in this book contain a unique coverage of current knowledge and research in the interrelated fields of computer-based learning/teaching and processing of specialized linguistic domains. This publication is a very valuable collection that provides insightful discussions of a variety of issues relating to LSP Research and Education. As the editors claim in the last chapter of the book, in the case of a book dealing with applied technologies like this, "the future starts even before it is published", due to the vertiginous technological evolution. In spite of it, the editors successfully overcome that limitation finishing the book by describing the most relevant future areas not included in the volume. This book is a very valuable resource for the diverse range of professionals that populate the computer-based language learning/teaching and processing universe.