

ARTE Y HUMANIDADES

*Technological Innovation in the
Teaching and Processing of LSPs:
Proceedings of TISLID'10*

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UNIVERSIDAD NACIONAL DE EDUCACIÓN A DISTANCIA

ARTE Y HUMANIDADES (0101008CT01L01)

TECHNOLOGICAL INNOVATION IN THE TEACHING AND PROCESSING OF LSPs:
PROCEEDINGS OF TISLID'10

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PREFACE
ON TECHNOLOGICAL INNOVATION IN THE TEACHING
AND PROCESSING OF LSPs

TISLID'10

The present book contains the articles corresponding to the papers presented at the *First International Workshop on Technological Innovations for Specialised Linguistic Domains* (henceforth, TISLID'10; <http://atlas.uned.es/TISLID10>), which was held at the School of Philology of the Universidad Nacional de Educación a Distancia (UNED) in Spain, on October 21-22, 2010.

This event was organised by ATLAS (Artificial Intelligence Techniques for Linguistic Applications; <http://atlas.uned.es>), a Spanish research group that has been working for over a decade in the field of Computer Assisted Language Learning (henceforth, CALL). ATLAS was founded in times when foreign languages (and their corresponding sublanguages) were taught in distance education scenarios using textbooks and workbooks with answer keys. Interaction was essentially limited to answering phone queries from a small percentage of students (often not the ones who most needed assistance). Teachers were inevitably focused on the evaluation and administration aspects, rather than on being facilitators, “scaffolders”, guides, motivators, etc., i.e., not playing all those roles that make this profession interesting, challenging and more importantly, effective. Something very similar can be said about other language related posts and academic roles such as lexicographers, translators, and other language specialists. If we look back just a few years it is hard to believe how much time we dedicated to finding linguistic resources and how much more intuitive and approximate the whole process used to be.

Today this situation has changed, in general for the better, and this is largely due to the arrival of Information and Communication Technologies (henceforth, ICTs). Subsequently, computer mediated communication gave way to computer supported collaborative learning, fully automatic machine translation gave way to the use of integrated translating tools, computational lexicography and terminology incorporated increasingly more sophisticated corpus analysis tools, etc. Research on language teaching/learning over the last decade has led to a

considerable proliferation of technological applications of increasing quality. This was, therefore, a very appropriate time to host a research event which would offer the research and teaching community an opportunity to exchange knowledge and experiences and promote face-to-face academic debate on effective and innovative ways to design and develop CALL systems and Natural Language Processing (henceforth, NLP) systems for sublanguages or specialized linguistic domains.

Why confine ourselves to “restricted” or “specialised” linguistic domains?: largely for practical reasons to be found in the real social demand for these languages for special purposes. Many of the current language-based computational applications are specifically oriented towards restricted professional and academic contexts as a reflection of real world demands for language tuition and processing. A large number of professionals and academics require the development of language communicative competences within specific domains. The multiple divergences of such specialized linguistic domains with respect to general or standard languages require a specific approach for their computer-based teaching and processing of what are also referred to as LSPs (Languages for Special Purposes).

The program of TISLID'10 was established to be representative of research in this interdisciplinary field, the different techniques, strategies and methodologies being used these days at national level and illustrative of such research at international level. The inclusion of basic research undertaken in tertiary educational institutions and research centres, together with the applied research and commercial development undertaken by publishers, e-Learning companies, etc., was considered to be a priority. In order to reflect this heterogeneous scientific scenario, TISLID'10 contained keynote speeches by Elisabet Arno, from the Universidad Politécnic de Catalunya and president of the European Association for Languages for Specific Purposes (AELFE); Ana Gimeno, from the Universidad Politécnic de Valencia and president of the European Association for CALL (EUROCALL); Stephen Bax, Reader in English Language, Learning, Assessment and Technology from the University of Bedfordshire and member of CRELLA (Centre for Research in English Language Learning and Assessment); Ricardo Mairal, full professor of English Language and Linguistics at UNED and codirector of the Lexicom research group; Cleve Miller from Cambridge University Press, founder and managing director of the English360 online learning community; and also David Holmes, teacher trainer at Macmillan English Language Teaching and editor of the language teaching online journal *The Macmillan Magazine*.

The ATLAS group presented their theoretical research and system design and development framework, which make up a key part of their current research project on intelligent CALL¹. during a round table session. ATLAS is currently researching the way in which face-to-face professional English language classes can be optimally complemented by innovative ICALL software based upon the Systemic Functional Linguistics approach, integrated with the notional-functional syllabus model in the *Common European Framework of Reference for Languages* (henceforth, CEFR), and a cognitive and social constructivist pedagogic framework, which leads to the integration of individual and collaborative learning as the two arguably necessary sides of the same coin. In previous projects undertaken by the research group, all the software was developed by the team, including the online learning environment; now, the e-Learning platform Moodle 2.0 is being used (since, as has been argued in the literature, it is a very suitable platform for adaptive learning innovation and is also well known to the majority of the second language teaching/ learning community; its use thereby increases the chances that the research undertaken in the I-AGENT project will be used by others), together with an intelligent diagnosis and material selection mechanism developed by the group.

A number of short papers were also presented in TISLID'10, most of which are covered in these proceedings. Several workshops were also run which generated stimulating interaction between attendees. Together they offered a mosaic-like overview of the role of ICTs in both the learning and the processing of LSPs. Many recent key concepts on the application of computers to languages were brought up, questioned and reflected upon, such as: authenticity, personalization, normalisation of the use of technologies, virtual worlds, augmented reality, etc. All the presentations dealt with different views on the gigantic progress that we are witnessing regarding the way we teach and work with languages since the incorporation of computers. Some of the talks were insightful high level reflections or analyses of the current state and future direction of this field, while others provided fruitful low level research experiences. Furthermore, a number of talks adopted a critical position, claiming the need for in-depth analysis on the pedagogical value of each system and tool for languages as they become available; the convenience of maintaining what is good about conventional didactic methods and the traditional “teacher-materials-students” triangle; and the need for collaboration between system

¹ The I-AGENT project is funded by the Spanish Ministry of Science and Innovation (ref. no.: FFI2008-06030).

developers, publishers, teachers, and students! Finally, some predictions were made about what teaching and processing languages will be like in the next few years (using web-based collaborative platforms, playlists, etc.).

Most of the conferences and the round table session were broadcast online and are stored on CanalUNED, which is accessible from the UNED's webpage, where they remain openly available to our students and the general public at the following address:

21-10-2010

<http://teleuned.uned.es/teleuned2001/directo.asp?ID=4986&Tipo=C>

22-10-2010

<http://teleuned.uned.es/teleuned2001/directo.asp?ID=4987&Tipo=C>

STRUCTURE OF THIS BOOK

This book is divided into four parts. The first section contains ten articles dealing with ICT and LSPs teaching/ learning. The first article, *Approaches to Information Technology from an LSP Perspective: Challenges and Opportunities in the New European Context* by Arnó-Macià, is a thorough and insightful review of the impact of IT on LSP, focusing mainly on central questions related to the LSP debate, such as the roles of teachers and learners, authenticity and specificity of materials, genre, and skills development, taking into account the European reform of university education. The second article, *ICT-based Instruction for Specialised Vocabulary Development*, by Bocanegra Valle and Perea Barberá, focus on computer-supported teaching/learning of Maritime English vocabulary in general, and the application of the Moodle glossary tool contained in particular. The third article, *Maritime English Teaching and ICTs: The Practitioners' Point of View*, by Bocanegra Valle and de la Campa Portela, also deals with the didactics of this domain, specifically the practitioners' view on their preferences regarding the application of the different types of currently available commercial software. The fourth article, *Structuring Student ESP Projects: Preparation, ICT Tools, and Assessment*, by Shchemeleva, explores several individual ICT-based projects on ESP, their usefulness in the development of certain competences, and the difficulties faced by both teachers and students while working on them. The fifth article, *Value Added Teaching: Corpus-Based Methods for LSP Teaching*, by Wilson,

Sharoff and Stephenson, presents a corpus-based approach to teaching business Russian, which involves the enhancement of existing corpus-based tools to facilitate vocabulary acquisition and register identification. The sixth article, *The Use of Blogs as Interactional Feedback in the EFL Classroom: A Way to Focus on Form through Conscious Reflection*, by Benítez Fernández-Espartero, presents the use of blogs as an effective tool to teach the formal aspects of language in combination with a real communicative context, while eliciting metacognitive self-awareness. The seventh article, *Interactive Materials, Collaborative Work and Web 2.0 in the Context of ESP*, by Martín Monje, explores the possibilities that virtual learning environments like Moodle, free authoring programs and Web 2.0 tools offer for the interactive teaching/ learning of scientific and technical English in a distance learning environment. The eighth article, *Collaborative ESP Learning: Some Thoughts Derived from Wiki Metrics*, by Mancho, analyses the divergent results of the application of the same type of wiki-supported ESP learning activity in different groups, and the didactic implications of the two resulting social writing models. The ninth article, *English for Art and Humanities: Aiming at Professional and Personal Growth in an On-line Course*, by Sánchez Suárez and Arroyo Vázquez, analyses the authors' experience in planning an ICT-based course for ESP and the adjustments made in the quest for learner support and management in order to create a cohesive learning community. The tenth article, *Revising Geometrical Shapes and the English Verb System with Civil/Building Engineering Students: Towards a Complementary Teaching Resource for LSPs* by Palacios Pablos, claims the pedagogic value of the use of a geometry-based system for the teaching of the English verb system, and the convenience of the design of an auxiliary software tool for the revision of this grammatical topic.

The second section contains eleven articles dealing with technological innovation in general foreign language education. The first article, *The Study of Distributed Teaching Presence in Asynchronous Learning Networks (ALN)*, by Bustos, Coll and Engel, presents a multi-method approach to the study of distributed teaching presence or educational influence in ALNs, combining a structural analysis of the participants' activity together with a content analysis of the contributions, in order to facilitate both individual and collective learning. The second article, *Modalities of Assessment on Online Language Learning Materials*, by Sevilla Pavón, Martínez Sáez, and de Siqueira Rocha, provides an overview of the assessment process of basic language skills, and explores the flexible way in which an online course and a tester contribute to the efficiency of the assessment of such skills in both student self-assessment and tutor assessment. This article

won the TISLID'10 Research Prize for the best article and presentation. The third article, *Teaching Spanish in Second Life: A Case Study*, by González Chávez, describes the advantages and limitations of Second Life, one of the best known virtual worlds within the educational community, for language teaching/learning, via the development of a case study as an “action research process”, namely a Spanish course for beginners in Second Life. The fourth article, *Dialogic Fluency — Why It Matters*, by Campbell, Wang, Meinardi, Richardson, McDonnell, and Pritchard, deals with a novel perspective on the concept of fluency, namely “dialogic fluency”, from the perspective of English as a foreign language, and it presents a research project which aims at promoting learner acceptance by the native English speech community through a corpus-based study of the prosody patterns in real dialogues, with special focus on high frequency phrases. The fifth article, *Formalising Text Difficulty within the EFL Context*, by Cantos and Sánchez, examines the degree of accuracy of the most commonly used readability indexes (which are useful, for example, for the automatic classification of texts with view to their use in language teaching), and proposes a new optimized measure of readability based upon the basis of the data obtained in the analysis. The sixth article, *On-going Implementation of Linguistic Innovations in Madrid*, by de la Morena Martín, provides an overview of the way in which the language educational authorities of the Community of Madrid view the general goal of bilingualism in primary and secondary education and the role of ICTs in its quest. The seventh article, *Bridging the Gap between Measured and Perceived Progress in the Digital Age*, by Schulstad and Graves, discusses the results of research on the applicability and acceptability of CALL technology in the private adult ESL (English as a Second Language) school sector in several native English countries, with the aim of designing some best practices. The eighth article, *Have Computers Ever Really Assisted Language Learning? Problems and Prospects*, by Read, Talaván, Pomposo, and Arús, describes the problems encountered by the ATLAS research group through the years in the design and development of CALL systems, as part of an iterative process which has helped to test and refine the theoretical ideas underlying their professional English framework. The ninth article, *MMOL Platforms: Open 3D Learning Technologies in Educational Practices*, by Lorenzo, presents 3D learning as a novel psychopedagogically founded approach to distance learning and MMOL (Massively Multi-user Online Learning) platforms as output of such an approach, which require the application of new technological solutions to cope with the demands of high performance computing. The tenth article, *Adventure Games and Language Learning*, by del Blanco, Marchiori and Fernández-Manjón, deals with

educational video games and their applicability to language learning due to the presence of factors like student motivation and contextualization. Some practical drawbacks in game development are identified, and a method is proposed, which is based both on the reusability of common structures in the field of language learning and the combination of e-Learning platforms. The eleventh article, *Establishing a Balance between Teacher-Based Classroom Teaching and e-learning*, by Stefanova and Gómez Ortiz, presents the authors' research findings regarding the integration of an innovative ICT-based approach with an interdisciplinary-driven ESL methodology in order to reach an effective balance between teacher-based classroom learning and e-learning.

The third section contains six articles which deal mainly with technological innovation in terminology and translation. The first article, *Using Ontologies for Terminological Knowledge Representation: A Preliminary Discussion*, by Mairal Usón, Periñán Pascual and Samaniego Fernández, offers a preliminary discussion of how terminological knowledge representation may be formalized within the framework of a knowledge base which integrates a comprehensive model of knowledge representation, including ontological knowledge. The authors claim that this core ontology interacts with various satellite ontologies and go on to propose a methodology for the development of such ontologies. The second article, *Theory and Methods in Translator Education at the Aarhus School of Business*, by Laursen and Arinas Pellón, discusses how to combine functional translation strategies with the use of concordancing software and genre analysis in specialised translation training. The third article, *The Translation of Give+ Noun Collocations in the World Health Organization Website*, by Molina Plaza, deals with the instrumentality of multi-word combination dictionaries for the translation of verb+ noun collocations and focuses on a case study based on a bilingual corpus of scientific and technical texts, arguing for the need for specialized tools to assist with the translation of these multi-word combinations. The fourth article, *Automatic Specialized vs. Non-Specialized Texts Differentiation: A First Approach*, by Cabré, da Cunha, SanJuan, Torres-Moreno, and Vivaldi, presents a tool for the differentiation between specialized vs. plain texts which uses corpora and machine learning techniques and association rules based on both lexical and grammatical features. This research has direct applications in the automatic compilation of LSPs and the optimization of search engines. The fifth article, *Using Ontologies for the Teaching of Terminology: The Case of a Package Travel Ontology*, by Bautista Zambrana, claims the general usefulness of ontologies for the teaching of terminology, and proposes a method for teaching German for

tourism based on the use of some ontology browsers and editors. The sixth article, *Writing Abstracts: Technological Applications from a Corpus-Based Study*, by Rabadán, Fernandez, Díez and López, describes the contrastive corpus-based methodology used by the authors to obtain empirical data for the design of a prototype for an abstract writing application for Spanish users.

The fourth section consists of six articles, which deal with technology and language corpus. The first article, *Monofunctionality in Pedagogical Dictionaries: The Pair of "MCDGr-ALGr" for Spanish Speakers*, by Papadopoulou, proposes a pedagogical dictionary pair model to be used by Spanish learners of Greek as a CALL tool, which involves a Greek monolingual coordinated dictionary – aimed at the receptive function – and a Greek active lexicon – aimed at the productive function. The second article, *A Genre-Based Approach to the Teaching of Business English: The GENTT Specialized Corpus in the LSP Classroom*, by Borja Albi, Juste Vidal, and Ordóñez López, presents practical learning applications for languages for professional purposes. Specifically, this research is based on a corpus of specialized genres developed by the authors, which provides empirically obtained models and patterns to be used as textual, conceptual, linguistic and terminological references. The third article, *A Collaborative Web 2.0 Site for Text Corpus Management: A Practical Case*, by Juste, Mascherpa and Conde, presents a corpus-based Web 2.0 tool to be used for specialised translation and learner-centred language learning. This flexible learner-centred tool can be used collaboratively and its main functions include document classification management and corpus search and management. The fourth article, *Knowledge Representation in EcoLexicon*, by Faber, León Araúz and Reimerink, presents a multilingual terminological knowledge base on the environment as a rich and internally coherent database covering specialized conceptual and linguistic information. A user-friendly multimodal interface has been developed, where interrelated modules can be accessed in a flexible way according to user needs. In order to avoid information overload, the authors have undertaken a reconceptualisation process based on domain membership and semantic role. The fifth article, *Internet Dictionaries for Spanish Students of Business English: Monolingual, Bilingual or Bilingualised?*, by Fuertes Olivera, defends a lexicographical approach to the study of terminology based on the function theory of lexicography. Following an analysis of the extralexical scenario of Spanish students of business English, the author proposes the construction of bilingualised maximising sub-field dictionaries as potentially efficient reference tools for conventional communicative situations. The sixth article, *Creating a Collaborative*

Online Legal English Glossary in Moodle: Process and Product, by Breeze, reports on the collaborative creation of an online legal English glossary in Moodle as a study tool integrated in a university ESP course. The decisions involved in this process are analysed, together with the positive feedback obtained from both teachers and students.

Despite the generally agreed upon usefulness of computing technology for languages, a recurrent reflection throughout the proceedings is the need for both linguistic and language pedagogy principles to take the lead in the quest for improving the quality of related automated processes. The answer to poor academic language results does not necessarily come from quantitative or qualitative technological advances, and not all new technologies have to be obligatorily embraced by teachers and learners from the beginning (using Stephen Bax's words: we don't all have to be "early adopters"). A consistent line of research is needed that analyses and demonstrates the real cognitive value of each single technology as it becomes available to scientifically justify if and how a particular technology should be used, in what contexts or scenarios, and under which circumstances.

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Special thanks go to our late beloved colleague Raquel Varela, who left us last August after having collaborated with ATLAS for many years, leaving the group with an unforgettable example of academic dedication and personal courage. The organisation of TISLID'10 was dedicated to her memory.

Elena Bárcena, Chair of TISLID'10
October 2010

SECTION 1
ICTs AND LSPs TEACHING AND LEARNING

APPROACHES TO INFORMATION TECHNOLOGY FROM AN LSP PERSPECTIVE: CHALLENGES AND OPPORTUNITIES IN THE NEW EUROPEAN CONTEXT

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ABSTRACT: Information technology forms part of our educational life, and we have seen how technology has evolved alongside broader educational perspectives and social changes. In the context of language education, IT has played a key role in shaping LSP teaching and research. Technology has contributed to creating new demands and situations for specialized communication, along with new genres and skills (including electronic literacy). On the other hand, technological resources have allowed LSP teachers and researchers to access contexts of real language use, to analyze them, and to create authentic and relevant LSP teaching materials. This paper presents a review of the impact of IT on LSP, focusing especially on central questions relevant to the LSP debate, such as the roles of teachers and learners, authenticity and specificity of materials, genre, and skills development. It identifies challenges and opportunities, taking into account the European reform of university education. It illustrates an approach to IT in LSP in the present context, by drawing on a project that involves the creation of online learning environment for EAP (*Quantum LEAP, Learning English for Academic Purposes*).

Keywords: online learning environments, learning processes, EHEA, LSP.

INTRODUCTION

Information technology (IT) has had a profound impact on our lives and it has also contributed to transforming educational practices. Alongside profound social changes and shifting educational paradigms, technology needs to be considered a major factor in reappraising teacher and learner roles in the processes of teaching, learning, and course design. The transformation of the ways in which we communicate, access and exchange information, and younger students' familiarity with the use of technology pose challenges to educators, and especially

language educators. Besides, in the context of languages for specific purposes (LSP), technology also becomes a gateway to specialized discipline knowledge and to students' relevant discourse communities. For these reasons, it is worth examining how IT is used in academic and professional situations, and how it can be harnessed for educational purposes. Considering that higher education in Europe is being transformed for greater harmonization and that we need to cope with the demands of academic and professional communication in a globalized context, this paper explores the role of IT in LSP, exploring the potential of technology to facilitate learning and communication as well as the challenges involved.

THE RELATIONSHIP BETWEEN IT AND LSP: AN OVERVIEW

The analysis of how IT can be approached from an LSP perspective takes as a point of departure the defining characteristics of the field (e.g. Johns & Dudley-Evans, 1991; Dudley-Evans & St. John, 1998; Alcaraz, 2000; Belcher, 2004). LSP is driven by the practical need of helping students participate in academic and work situations. LSP teachers and course designers are therefore concerned with tailoring courses and materials to suit students' needs, which are assessed by taking into account learners' profiles, the learning process, and the target situation. LSP courses aim at cost-effectiveness, authenticity (of materials, situations, activities), and motivation. Regarding the latter, the LSP student is usually characterized as being specially motivated, while teaching and materials are also oriented towards fostering this motivation. LSP teaching (and especially English for Specific Purposes, or ESP) is largely driven by economic trends and the internationalization of academic and professional settings, a situation that is especially relevant nowadays, with increasing work and study situations that involve communication and collaboration across borders—also facilitated by technology. Since LSP teaching aims at helping students enter the discourse community, its methodology draws on activities and practices related to it. For this reason, central concerns include the role of discipline knowledge, specialized discourse, and the genres used by the discourse community. From the point of view of methodology, Hutchinson and Waters (1987) define ESP as a “learning-centred approach”, which considers students' previous knowledge and skills, uses active learning, takes into account affective factors (e.g. enhancing motivation and promoting collaborative learning), and uses varied input for communicative aims (considering that language learning is often incidental).

An overview of the role of IT in LSP needs to consider the influence of technology in mainstream language teaching. CALL (Computer-assisted language learning) has evolved dramatically over the past decades. Warschauer and Kern (2000) refer to network-based language teaching (NBLT), while Levy (1997) notes the transition from the computer as ‘tutor’ to the computer as a ‘tool’, which should now include the expansion to portable devices used for communication, Internet access, multimedia, and the formation of virtual communities. In a context of greater technological interconnection, Kern et al. (2004) refer to the “second wave of online learning”, which extends beyond language learning by focusing on issues related to social discourses, identity, collaboration, and electronic literacies. However, it should be taken into account that technology *per se* does not involve innovation; rather, any approach to technology should be based on a sound pedagogic rationale. In this sense, we follow Garrett (2009) in that technology should be fully integrated with theory and pedagogy. The integration of technology in LSP should also be approached from a critical perspective, given that both language teaching (especially English, as a major *lingua franca*) and IT use involve certain values (see discussion in Chapelle, 2003). Critical pedagogies have also been a concern in ESP/EAP (English for Academic Purposes), regarding whether teaching involves accommodation to dominant discourses or aims at empowering learners (e.g. Pennycook, 1997; Belcher, 2004; Benesch, 2009).

A relevant theory of (language) learning is socio-constructivism (e.g. Mercer, 2000) by which learning takes place through interaction and involves the social construction of knowledge, mediated through scaffolding. Learning is thus viewed from an experiential approach (e.g. Kolb, 1984; Legutke & Thomas, 1991; Kohonen, 2001), characterized by a focus on the process and the active involvement of the learner, who brings in previous knowledge and views, which serve as a springboard for reflection and analysis.

An analysis of the impact of technology on LSP, in the teaching and research dimensions, has identified the following areas (Arnó et al. 2006):

- *The analysis of specialized discourse*: Technology has facilitated the development of corpora and tools for analysis, apart from the emergence of electronic genres.
- *Online communication*: It is not only a tool for learning, but also a learning objective, since authentic academic and professional communication often takes place online.

- *CALL*: computer applications have been designed for academic and professional situations, based on the abovementioned trends (computer as tool, collaboration, and socio-cultural concerns).
- *Online learning*: Online learning environments are used to cater for learners' specific needs, ranging from self-access to blended and distance learning situations.
- *Learner autonomy*: Attention has been paid to the use of IT to foster learner autonomy, based on learner choice and responsibility, and paying attention to the development of awareness and appropriate strategies.

THE NEW EUROPEAN CONTEXT

The new European context is characterized by internationalization, harmonization of degrees and a greater focus on learning outcomes, in turn, related to professional applications, all of which are of special relevance to LSP.

The Bologna Process and the Common European Framework

The current university reform as a result of the Bologna process has involved the redesign of curricula, aiming at transferability, mobility, and employability. It has involved a shift towards a learner-centred approach, with special emphasis on learning outcomes—with a competence-based paradigm—and on lifelong learning. Within a broader trend towards social and political cohesion, this process has led to greater academic and professional mobility and to the development of a certain European identity. English occupies a prominent position as a '*lingua franca*' and is increasingly used as language of instruction in higher education. In relation to language learning, two important instruments have been developed, the Common European Framework of Reference for Languages (CEFR) (Council of Europe, 2001) and the European Language Portfolio, which offer guidelines for course design and assessment, and provide tools for incorporating learner reflection and evidence of language competence.

The model for the redesign of university curricula distinguishes between generic and subject-specific competences. The latter, related to students' discipline knowledge, resonate with the multidisciplinary nature of LSP. Generic

competences are directly relevant to LSP courses, not only language and communication, but also broader interpersonal and systemic competences, such as social skills, ethical commitment, or sensitivity (González & Wagenaar, 2003). This context leads us to wonder about the role of LSP teachers and courses, especially with the current trend towards the integration of content and language (see Fortanet & Räisänen, 2008), which in turn may add to the ‘fragility’ of LSP (Swales et al. 2001). In this scenario, LSP teachers have an important role, integrating academic and professional communication skills with the social and critical competences that students need as citizens and professionals participating in society.

INTEGRATION OF IT IN LSP IN THE NEW CONTEXT

In a situation of increased international communication, the need for lifelong learning and the integration of social, personal, and linguistic competences pose a series of challenges for LSP teachers. In this sense, the presence of IT as a tool for learning and as a context for authentic academic and professional communication (Warschauer, 2006) leads to the reappraisal of key issues in LSP. The integration of IT in LSP needs to consider the following aspects: teacher and learner roles, developments in online learning, the role of discipline knowledge, academic skills, as well as the use of technology for collaboration, communication and lifelong learning.

The LSP Teacher and Learner

The LSP teacher has usually been characterized as innovative and flexible. Specifically, Dudley-Evans and St. John (1998) have identified multiple roles—teacher, course designer and materials provider, researcher, collaborator, and evaluator. In this increasingly internationalized setting, the role of collaborator comes to the fore, especially as technology allows communication, collaboration and the sharing of resources among LSP teachers as well as with subject-matter specialists. On the other hand, LSP learners have also been characterized as having a specific profile, in terms of their control and management of information, as they bring specialist communication into the classroom (both as part of the learning process and as part of the target activity). Experiential learning is especially relevant to LSP, and it is often the case that the teacher engages in collaboration

with the learner. More than ever, current LSP classes respond to immediate needs or help students engage in real-life activities, such as project-based work or academic mobility, for example. In the new European framework, with a focus on learning processes and outcomes, IT provides us with new challenges and new roles for LSP teachers and learners. For example, online learning allows us to reach larger numbers of students, but at the same time it makes us reappraise the traditional roles of teachers and learners. Especially, new demands are made on the teacher, in relation to adapting our pedagogy to the new environment, increased workload, student and institutional expectations, or recognition, for example, in a complex scenario (see e.g. Noble, 1998; Arnó et al. 2006).

Online Learning

Despite the challenges involved, online learning appears as especially appropriate for LSP teaching because of its flexibility (which allows teachers to design courses tailored to very specific needs), the absence of time and space constraints, as well as the possibility of providing realistic input and of integrating discipline knowledge. Because of its ubiquity, online learning can be used to provide tuition to learners in workplace situations, drawing on actual professional practices and engaging in simulations (e.g. Belcher, 2004; Arnó et al. 2006; and González-Pueyo et al. 2009).

In her review of online learning in LSP, Luzón (2009) points out a series of affordances. Online environments facilitate the delivery and management of content, although standard learning management systems (LMS) have limitations as far as learner-centredness is concerned. Online resources in LSP have been used mainly for blended learning rather than distance learning. Online learning also offers the possibility of customising materials for LSP, through authoring tools as well as of promoting learner autonomy through scaffolding and learner support. In the design of online courses for LSP, Doughty and Long (2003) recommend the use of task-based approaches, with activities based on varied input and focus on form.

Language and Content

Technology-based tools allow both teachers and learners to work on content and language, through access to relevant discipline-specific materials relevant to

the LSP classroom. Thus, tutorials and simulations that involve interaction in real medical scenarios¹, doing engineering experiments, or using students' scientific knowledge to engage in real-life projects can become the basis for activities that promote collaboration over relevant content and activities. With advances in technology, simulations now include the possibility of participating in immersive environments (e.g. 'Second Life'), which can promote student participation, foster motivation and engagement, develop speaking skills, and facilitate collaborative and learner-centred activities (Deutschmann & Panichi, 2009; Peterson, 2010).

In the discussion on the integration of language and content, we need to take into account current trends towards CLIL (content and language-integrated learning) in the context of the EHEA. We may wonder whether this situation puts ESP/LSP at a crossroads, as it often results in LSP teachers providing language support for content lecturers (Fortanet & Räsänen, 2008). In this scenario, the LSP teacher can take different roles, namely, providing support in a subservient role to content lecturers, engaging in interdisciplinary collaboration with an equal status to that of other lecturers, or using LSP courses as the basis for the integration of different competences promoted in the EHEA, using humanistic content to engage students in critical thinking (i.e. 'sustained content', Pally, 1997). And what is the role of technology? Both CLIL and technology form part of the European agenda (Fortanet & Räsänen, 2008). As the above examples show, technology makes materials available for the engagement of subject-matter specialists, students, and LSP teachers alike, providing a common ground for interaction and interdisciplinary collaboration. As part of this interaction, the availability of discipline-related material can lead to LSP activities that raise students' awareness of their belonging to a certain discourse community and make them explicitly relate the learning of language with that of disciplinary knowledge (see e.g. Barahona & Arnó, 2001).

Academic Skills

Technology has transformed the academic landscape with open access to information and the possibilities of publishing for all types of audiences, which

¹ Examples of these resources include the "moulages" in Trauma.org (<http://www.trauma.org/index.php/main/moulages/>), the "Virtual Labs" that form part of the "What's engineering" course, from Johns Hopkins University (<http://www.jhu.edu/virtlab/virtual-laboratory/>) or the "Interactive Exhibits" that allow learners to apply scientific knowledge to a specific project, such as physics in the design of a roller coaster (<http://www.learner.org/interactives/parkphysics/coaster/>).

inevitably leads to a redefinition of notions like authorship, voice, or empowerment. In relation to technology and knowledge, Pierre Lévy (1998) defined our 'cyberculture' as the "Second Flood", a revolution comparable to the *Encyclopédie* of the Age of the Enlightenment, which involved the collection and dissemination of Knowledge, driven by ideas of democracy and citizenship. Lévy compared the work of the French *encyclopédistes* to that of Noah during the Biblical Flood, collecting what needs to be preserved for future generations, canonical Knowledge that is manageable and sealed (like Noah's Ark with the specimens in it). In this sense, the technological revolution is like a "Second Flood", "the chaotic overflow of information". In this new world, Knowledge is too vast and unmanageable to be collected and disseminated. Thus, instead of a single big "Ark" with the canonical Knowledge that needs to be transmitted, there is a collection of individual meaningful "knowledges". In other words, each of us is Noah, constructing small varied arks that are interconnected, and constantly changing. Within a socio-constructivist paradigm, learning involves the co-construction and sharing of knowledge. Similarly, UNESCO (2005) advocates for the construction of diverse "Knowledge Societies", in which technology facilitates the open access to and dissemination of knowledge, aiming at democratic ideals.

As a result of the social impact of IT, we have moved from a model based on the Encyclopedia to one based on the "Wikipedia" and open access (software, learning spaces like Moodle, etc.). The Internet has also undergone a transformation from the Web 1.0, mainly a repository of information, to the Web 2.0, based on user-generated contents through blogs, wikis, and social networking sites. For LSP students, these changes involve the opportunity to access authentic content and genres related to their discipline or activity as well as to actively participate in the discourse community. Technology facilitates access to resources with varied, multimodal input, which can promote the integration of language and content, as well as lifelong learning. Examples of relevant resources for LSP include corpora like *MICASE*, with authentic academic speech (Swales, 2006), or the open access course materials from the Massachusetts Institute of Technology (MIT, OpenCourseWare). Other resources like open access journals or networked platforms of thematic content allow LSP students to participate in the discourse community at large.

For some years, the potential of technology has been harnessed by teachers and researchers of languages for academic purposes. The Internet, with the vast amount of learning resources it contains, has been considered a 'virtual self-access

centre' (Little, 1997). In the setting up of self-access centres, like the EAP centre reported by Nesi (1998), networked resources have been exploited to facilitate learners' access and choice. Online self-access centres provide the opportunity to develop academic alongside Internet skills, based on computer-mediated interaction among participants and the promotion of (collaborative) autonomy (Ding, 2005). Because of its hypertextual structure, the Web provides 'connectivity' (i.e. it allows teachers and learners to design flexible learning paths) rather than predetermined 'content', as opposed to previous multimedia materials on CD-ROMs (Felix, 2002). In view of the changes brought about by technology, the teaching of language skills should be reappraised on the basis of an "electronic literacy approach", which includes IT-based research skills, online reading, etc. (Shetzer & Warschauer, 2000). EAP skills have also been expanded to include critical skills related to IT, such as the evaluation of websites, for example (Slaouti, 2002; Stapleton and Helms-Park, 2005). The emergence of Web 2.0 applications has also led EAP researchers to relate traditional academic writing concerns with applications such as wikis (Kuteeva, 2011) and blogs (Murray et al. 2007). Considering students' familiarity with such tools, the question may arise as to the role of the LSP teacher (often less technologically savvy than students). Vie (2008) defends the integration of Web 2.0 applications in the classroom, on the grounds that students' familiarity does not necessarily involve the possession of adequate critical literacy skills for the effective academic use of such tools. She terms this situation the "Digital Divide 2.0" (going beyond previous views of the "digital divide" as access or ability to use the technology) and recommends taking advantage of students' familiarity with Web 2.0 tools to incorporating them into the classroom, integrating critical and academic literacy concerns.

Collaboration, Communication, and Lifelong Learning

LSP teachers face the challenge of preparing students for academic and professional activities in a globalized world, which often take place through electronic collaboration and communication across borders. To respond to these demands, we should use methodologies that draw on the uses of technology in real-life practices, such as GNLEs, 'Globally-Networked Learning Environments' (Starke-Meyering, Duin & Palvetzian, 2007). In GNLEs, technology is a learning tool as well as a real context for collaboration and communication with different types of audiences worldwide. Such projects are

characterized by being grassroots initiatives of teachers to create online exchanges across borders, in order to develop students' literacies to work and study in a globalized context. Intercultural competence is a key issue, which is approached from an experiential perspective, taking advantage of the multicultural nature of the partnership. GNLEs allow students to acquire international academic experience, which is systematically incorporated into the curriculum, thus relating global with local concerns. There is a tradition of technology-based projects in LSP that share these characteristics, such as the 'telecollaboration' between US and German students (Belz, 2001), the e-Tandem project between Spanish and Irish LSP students (Appel & Gilabert, 2006), the collaboration between US and European students on technical writing projects (Maylath et al., 2008), or the content-based approach to interculturality through the collaboration between LSP students from Germany and New Zealand (Walker & vom Brocke, 2009). These experiences are based on tangible projects for students to complete using a variety of technological tools (email, chats, or different types of sites). They follow task-based approaches with a high-degree of learner choice (topics and contents that they decide to focus on, the alternation of focus on meaning and focus on language, etc.), which in turn entails new, flexible roles for teachers and learners. In all these projects, cross-cultural and/or cross-linguistic issues are a major concern.

DEVELOPMENT OF A TECHNOLOGY-BASED LSP PROJECT

This paper has provided an overview of how technology is being used to address some central concerns in LSP, especially in a transforming scenario characterized by the presence of technology, the internationalization of academic and workplace settings, as well as a European framework that emphasizes the harmonization of degrees, learner-centredness, and lifelong learning. Some IT-based approaches to LSP have been discussed to face these challenges, and the remainder of the paper is devoted to analyzing an EAP project that puts into practice some of the abovementioned issues relevant to LSP, the online learning environment *Quantum LEAP (Learning English for Academic Purposes)*².

² This project is the result of the initiative of a team of lecturers from Universitat Politècnica de Catalunya (Barcelona), Universitat de Lleida, and Universitat Rovira i Virgili (Tarragona). It has been funded by the Generalitat de Catalunya and the participating universities. For more information about the project and access to the online learning environment, visit <http://www.quantumleap.cat>

The Development of an online Learning Environment for EAP

In order to take advantage of technology to support learning in both courses and self-access situations, a team of LSP lecturers in different universities decided to create an online learning environment, to share learning resources and extend EAP teaching/learning beyond the classroom. This project applies some of the principles discussed in this paper:

- The collaborator role of the LSP teacher.
- Using English in students' academic life through varied input and relevant genres.
- Integrating different competences related to EAP and critical thinking, integrating content and language, and using CEFR guidelines.
- Learner autonomy.
- Open access.

Quantum LEAP (described in Arnó et al. 2009) is organized as a series of thematic modules dealing with interdisciplinary topics of academic interest that try to promote students' engagement (e.g. Women and Science, Humans and



Figure 1. Screenshot from the speaking section of Module 1 (Women and Science).

Machines, Globalization and the English-speaking World, etc.). Activities address the skills of reading, writing, listening and speaking, through real academic communication (including a tool to record students' spoken production). Figure 1 shows the different sections of a module.

Pedagogic Approach

Through authentic interdisciplinary content, *Quantum LEAP* aims at developing students' EAP and critical thinking skills, encouraging spoken and written production and paying attention to academic skills and genres. It is a flexible learning environment (designed for a variety of learning situations) with a high degree of interactivity, so as to promote learner autonomy. Thus, it incorporates tools for the organization and management of learning, like an e-portfolio, mechanisms for collaboration and communication, materials at different levels (B1-C1, CEFR), study guides, and a personal log for learners to monitor their progress.

Open-ended tasks are used to promote academic engagement and critical thinking. This approach implies that learners are not assessed on their scores or that, often, 'right answers' cannot be provided. However, guidance and feedback is provided in the form of example answers, models, suggestions, and step-by-step guides. Scaffolding thus consists of resources that students can use depending on their needs, paying attention to both the process and the product as well as to the characteristics of different academic genres.

Critical thinking is encouraged through questioning and reflecting on one's own values. From an experiential approach, 'sustained content' becomes an appropriate framework for EAP and critical thinking (Pally, 1997). In *Quantum LEAP*, technology plays a key role, not only because it is a web-based learning environment, but also because many of the activities involve working on electronic genres, the development of electronic literacies, as well as reflection on the impact of technology on society (e.g. interaction through and with machines, science fiction, etc.).

Although the project is currently under development and evaluation, a beta version is already available. This project exemplifies the use of IT to face some of the challenges that LSP teachers are confronted with in the present European context. With this project we have used technology to achieve the following

aims: to promote collaboration (among teachers and with learners), to provide an open access learning tool which is flexible and interactive, and to facilitate the integration of EAP and critical thinking with interdisciplinary, humanistic content.

CONCLUSIONS

In a complex, changing context characterized by globalization, the pervasive presence of technology, greater student and worker mobility, and the use of English as a *lingua franca*, LSP teachers are faced with important challenges. Especially in Europe, with the creation of the EHEA and the trend toward social and political cohesion, we need to address the complex task of preparing students for effective academic and professional communication across borders. Technology can become a powerful tool to provide authentic input, new modes of communication and genres, open access to information, as well as new opportunities for learning and for the development of new literacies. These opportunities are not exempt of challenges, but through collaboration and networking we can contribute to building the knowledge societies of the 21st century.

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ICT-BASED INSTRUCTION FOR SPECIALISED VOCABULARY DEVELOPMENT

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ABSTRACT: This paper focuses on the teaching and learning of specialised vocabulary through Information and Communication Technologies (ICTs) in general and, more precisely, on computer-supported teaching and learning of Maritime English (ME) vocabulary. It first addresses the potential contribution of ICTs in view of enhancing lifelong learning and autonomising ESP learners. Next, it explores the relationship between ICTs and specialised vocabulary development. Finally, it focuses on the Glossary tool contained in the Moodle platform at the University virtual campus to present and discuss its application for the teaching/learning of ME vocabulary.

Keywords: Computer-assisted instruction, specialised vocabulary, lifelong learning.

INTRODUCTION

The implementation of the Bologna reform in European universities is gradually leading to a change in the methodologies used in formal settings. On the one hand, teachers are urged to abandon the traditional idea of being considered the major source of information and knowledge, to adopt new roles within the teaching/learning process (facilitator, counsellor, guide, etc.) and embed Information and Communication Technologies (ICTs) in their courses, either in their everyday classroom work or as a complement to face-to-face sessions. On the other, learners have to change their attitudes towards formal teaching/learning, accepting an active role in their own learning processes and tackling potential ICT illiteracies.

This paper focuses on the teaching and learning of specialised vocabulary through ICTs in general and, more precisely, on computer-supported teaching and learning of Maritime English (ME) vocabulary. Following the arguments

posed by Ruiz-Madrid and Sanz-Gil (2007: 65), we will use the term ICTs “to cover all the technological advances that are being applied in the field [of language learning]” and also when taking into account the possibilities afforded by technology for language teaching and lifelong learning; however, the classroom project presented in this paper is particularly focused on the implementation of “computer and network hardware and software” and, thus, expressions such as “computer-based”, “computer-assisted” or “computer-supported” will be used when referring to the ways ICTs have been integrated into the ME course.

In this paper we will address the challenges of ICT-based pedagogy to the ESP classroom in general, and the ME classroom in particular, by paying attention to (1) the potential contribution of ICTs for enhancing lifelong learning and nurturing autonomous self-directed learners, and (2) the relationship between technological courses and specialised vocabulary development. Then, we will examine the Moodle Glossary tool, a specific computer-based academic platform at the University virtual campus, and how it can be implemented in view of strategic ME vocabulary development.

ICT-BASED PEDAGOGY, LIFELONG LEARNING AND AUTONOMOUS LEARNERS

Under the framework of the European Space for Higher Education (ESHE), action on lifelong learning is addressed through six key messages (Commission of the European Communities, 2000), number three being “Innovation in teaching and learning”. With the objective of developing effective teaching/learning methods and contexts in view of lifelong and lifewide learning, this key message highlights that ICT-based learning technologies have a prominent role in achieving innovation in teaching and learning methods as well as in enabling individuals to become active learners. More precisely, educational systems are encouraged to “adapt to the changing ways in which people live and learn their lives today” as well as “generate productive self-directed learning” (Commission of the European Communities, 2000: 14). In so doing, teachers are urged to face “decisive change in the coming decades: teachers and trainers become guides, mentors and mediators” (Commission of the European Communities, 2000: 14), and adapt to the rapidly changing educational contexts and promote active learners in view of lifelong learning.

As an educational construct, “lifelong learning” may also be labelled as “self-directed learning” or “autonomous learning”; however, the former implies a goal in the much longer term.

There is an upward trend of studies that explore the relationship ICTs/autonomy/ESP learning and both theoretical and quasi-experimental studies have been recently conducted to illustrate how ESP learners in specialised language settings can benefit from the implementation of ICTs for autonomy and self-direction. Devaux, Otterbach and Cheng (2006), for instance, explore how to use technology to facilitate effective learning and engender lifelong learners among a group of Asian students engaged in three different ESP/EAP courses. Trinder (2006) analyses the benefits of implementing the “autonomy perspective” among “English for Economics” students through the *Online English Mentor*, a web-delivered course. Ruiz-Madrid (2006) investigates the contribution of forums available at “Moodle” as “autonomising tools” for a group of “English for Computer Science” students, and, in another work (Ruiz-Madrid & Sanz-Gil, 2006) theorises over the integration of ICT in language learning in view of “autonomising competence”. Argüelles (2009) explores the possibilities and benefits of applying “Moodle” to a learner-centred “English for Professional Communication” context; and Bueno (2009) examines the possibilities of WebCT for “English for Agriculture” students and the effect of this platform on students and teachers alike.

Studies on ICTs as applied to ESP have flourished in the recent years and, particularly, the combination ICTs/autonomy/ESP arouses high expectations of promising research within the ESP arena. Nonetheless, despite the late proliferation of publications on this triple issue, there still is a dearth of real experimental research on the role and contribution of ICTs for self-directed learning in specialised language settings that helps to quantify and assess how much and to what extent ESP learners can benefit from technological classrooms.

ICT-BASED PEDAGOGY AND SPECIALISED VOCABULARY

The vocabulary contained in academic and professional language (i.e. specialised vocabulary) may be classified into technical, sub-technical or semi-technical, and general (see Figure 1). Technical vocabulary is defined as “words that are very closely associated with a specialist area” (Nation & Chung, 2009: 545); or, more precisely, “content words whose meaning is restricted to the

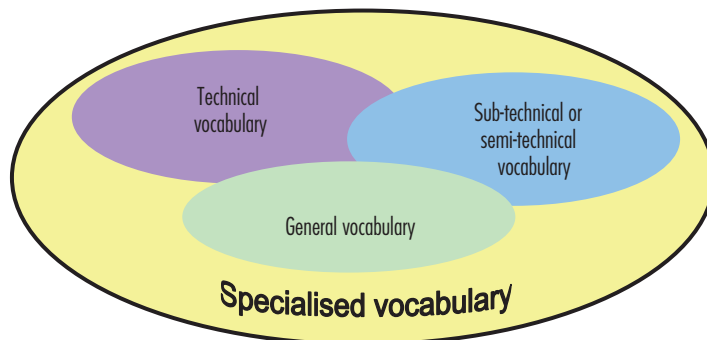


Figure 1. Classification of specialised vocabulary.

specific subject, characterizes the specific language as an individual area of the global language and constitutes the terminology of the domain” (Rea, 2009: 162). Sub-technical or semi-technical vocabulary is defined as “general content words whose meaning becomes specialized in a domain but it is understandable from its meaning in a general context” (Rea, 2009: 162). Finally, general vocabulary refers to those words that are known to the general speaker and coexist with technical and sub-technical vocabulary in a specialised text. Regardless any of these levels, words may display a high frequency or a low frequency in language use depending on the target piece of discourse – i.e. subject-matter, topic, register, mode, tenor, etc.

As far as the specialised vocabulary in maritime settings is concerned, Pritchard (2003: 157) classifies what he calls “Maritime English lexis” into five distinctive groups, the five of them being the focus of this paper as described later on:

- 1) “a very limited number (up to 7%) of strictly technical/nautical terms, whose central lexical meaning (...) is restricted to maritime use only and thus ‘unambiguous’ by nature”. Examples of these are: “starboard”, “hull”, “buoy” or “bow”;
- 2) “numerous semi-specific general vocabulary items, often highly polysemous, which are disambiguated in the maritime context only”. Examples of these are: “haul”, “overtake”, “position” or “fairway”;
- 3) “function words”, such as auxiliary verbs or prepositions, and “semi-lexical items”, such as verbs like “let” or “make”;

- 4) “an unlimited number of very productive multi-word lexical units consisting of the words of general vocabulary having specific meaning in the maritime context and setting”. These may be compound nouns such as “vessel traffic service” or “shipping forecast”, or prepositional/adverbial phrases of the type “heave in”, “heave on”, “heave up”, “heave to” or “heave away”;
- 5) “linguistic expressions of speech acts in maritime communication, discourse connectors and markers in maritime texts”. Examples of these are: “mayday” or “stand by”.

Turning to the issue of ICTs and taking into consideration effective vocabulary development, Pavičić (2008: 63) contends that thanks to computer learning programmes “learners can control and direct their learning, that is determine the pace of learning and the time devoted to one lexical item, as well as choose materials”; however, as research in the field of computer-based vocabulary learning reveals, learners are also required to become both active learners (i.e. invest time and effort) and strategic learners (i.e. apply how-to-learn skills or vocabulary learning strategies) if they want to be successful vocabulary learners. As Nation and Chung (2009: 552) point out, “computer-assisted vocabulary learning can be an effective way of getting help with vocabulary”. Based on published literature, these scholars stress the contribution of computers for language-focused learning and suggest five ways of implementing computers in vocabulary learning:

- 1) to include computer-based analysis of vocabulary and procedures for determining technical vocabulary;
- 2) to analyse texts for research and assessment purposes;
- 3) to include programs for the deliberate learning of vocabulary;
- 4) to use text-linked aids (e.g. concordances or electronic dictionaries) which support reading; and
- 5) to use word-processing tools for feedback on electronically submitted written work.

The ICT-based instruction detailed in this paper falls within the scope of the third possibility as it promotes language-focused learning through the implementation of vocabulary-learning strategies for deliberate and active learning.

METHODOLOGY AND RESULTS

Setting and Participants

The University of Cádiz (Spain) is actively promoting the participation of lecturers in projects for the implementation of the Bologna requirements and, as mentioned, this requires changes in the roles of both lecturers and students. Several steps have been taken to complement face-to-face classes with virtual instruction/learning integrating ICTs in the curriculum.

Students enrolled in the course *Nautical English*, the first compulsory English for Professional Purposes subject in their second year at University are the target of the activity discussed in this paper. In general, the students' level of proficiency in English varies from B1 to B2 levels of the Common European Framework of Reference for Languages (CEFR). The activity took place in the Spring semester of the 2009/10 academic year. Among the students who regularly attended class, twenty followed all the outside class activities – namely, the use of MarEng, a web-based maritime English language learning program, and of Moodle, a virtual learning environment.

Moodle is the course management system for the University's Virtual Campus. It is based on a socio-constructionist framework of education and provided as open source software. The Glossary is one of the many activity modules offered by Moodle. There are many interesting options to choose from the Glossary setup. However, the most attractive aspect is that it has a number of features that make it easy for students to develop a shared list of terms with definitions.

Implementing the Glossary Tool in the ME Course

Based on our previous experience in the use of Vocabulary Learning Strategies (Perea, 2009), the chief aim of the activity was to see if the use of the Glossary increased specialized vocabulary retention among students of ME. There were also other objectives, namely, enhancing autonomy and cooperative learning, which happen to be the main focus of this paper. On the one hand, students participated in the creation of the Glossary by adding their own terms; we tried to promote their autonomy by letting them choose the terms and where to look for the information they needed, though some guidance was provided.

On the other hand, all the students worked together to create a final glossary of almost 400 specialized terms from the maritime field; this became a group work experience which helped boost cooperative learning. A printer-friendly version was made available for personal use.

First of all, we inserted the Glossary activity in our Virtual Campus course and placed it on the site front page. We gave it the descriptive name *Maritime Glossary*, indicated its purpose and provided instructions in the “Description” area (see figure 2). No duplicated entries were allowed. The teacher, as administrator of the glossary, could edit or delete any entry at any time. From the different display formats, we chose the “dictionary style”, which looks like an ordinary dictionary and entries can be ordered alphabetically or by the author’s name or surname.

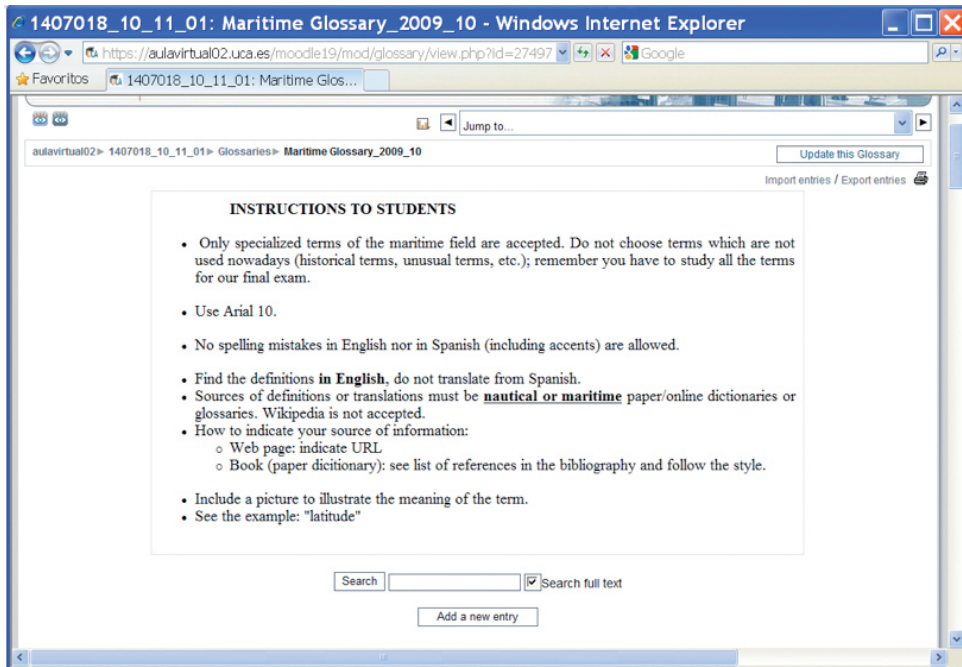


Figure 2. Glossary instructions.

Each glossary entry consisted of the maritime term, a definition in English, the translation into Spanish and a picture (see figure 3). Students were required to add, at different times during the whole semester, a total number of 15 terms.

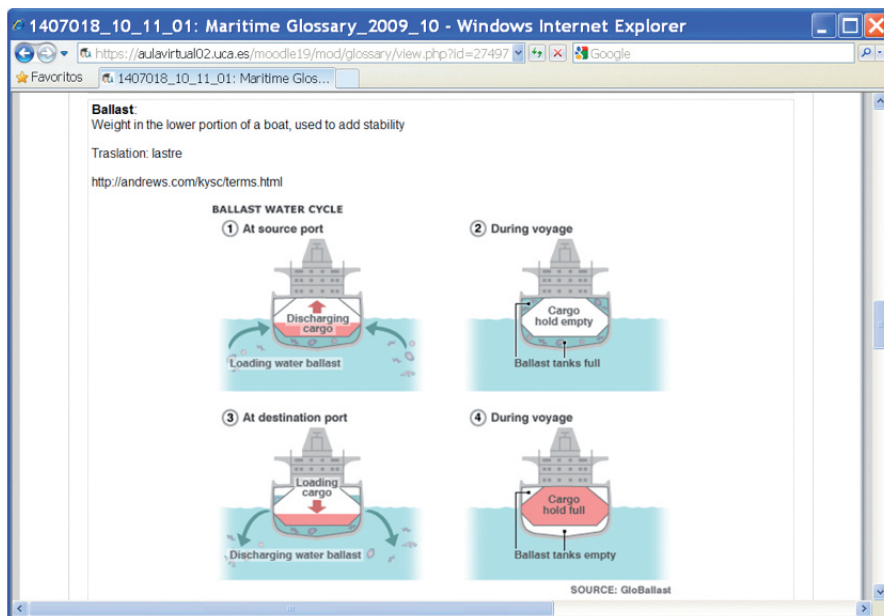


Figure 3. Glossary entry example.

Students' Perceptions of the Glossary

At the end of the semester, a questionnaire with 12 items was handed out to the 20 students who had participated in the creation of the *Maritime Glossary* and had introduced all the required terms. The questions focused on the experience of the learners with the Glossary and their perceived usefulness. Questions 1 to 9 were closed and students had to choose from a number of answers; the last three questions were open and students could express their opinions more freely. In the following paragraphs, we will highlight some relevant data collected in the questionnaires.

The majority of students (75%) believe that adding entries to the Glossary, that is, choosing the term, looking for its definition, translation and picture, helped them retain the maritime vocabulary more successfully (see figure 4).

We also noted that the vast majority of students (85%) state that they drew on the final *Maritime Glossary* for the learning of specialized vocabulary (see figure 5). This indicates that creating a class Glossary is a collaborative work from which most students benefit.

Q.3: Consider the terms you added to the Glossary. Has this activity helped you learn specialized vocabulary?

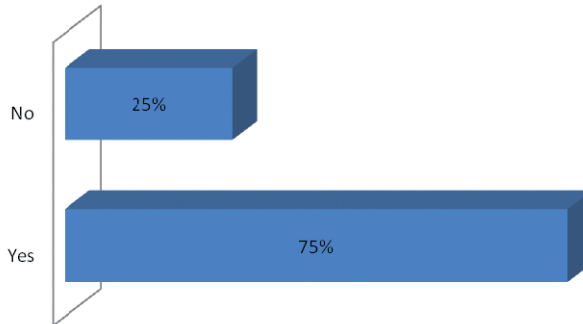


Figure 4. Question 3.

Q.4: Have you used the *Maritime Glossary* for studying ML?

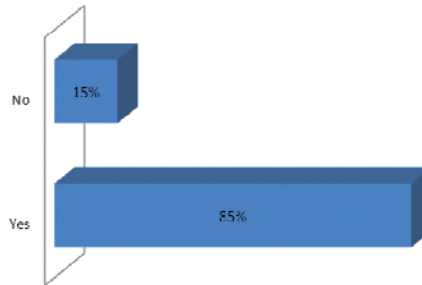


Figure 5. Question 4.

Concerning the perceived usefulness of the different sections within each entry, the translation of the term into Spanish seems clearly to be the students' favourite, followed by the picture and the definition (see figure 6).

As to what extent the *Maritime Glossary* contributed to the learning of specialized vocabulary; most learners (65%) thought that the contribution was positive, and were also positive about the activity itself (see figures 7 and 8); however, some were not so sure about its value as an outside class activity (see figure 9).

The students mostly complained, both verbally throughout the semester and in the open questions of the questionnaire, about the excessive time it took them to complete the activity. This was mainly due to the difficulties they encountered when adding entries to the glossary (see figure 10) – among them, “choosing a

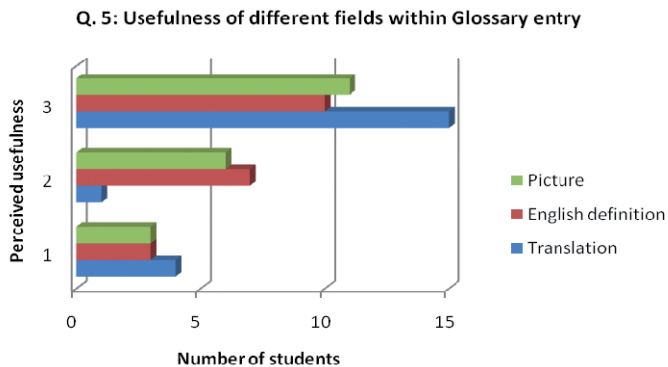


Figure 6. Question 5.

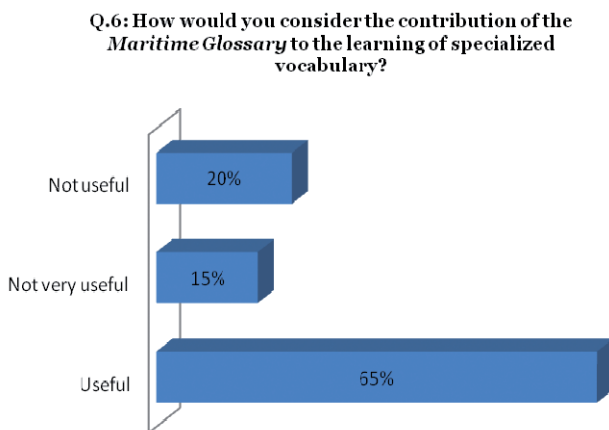


Figure 7. Question 6.

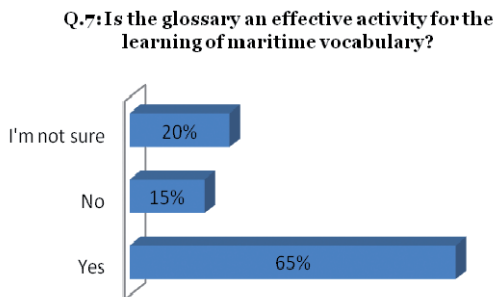


Figure 8. Question 7.

Q.8: Do you think the Maritime Glossary has been a good outside class activity?

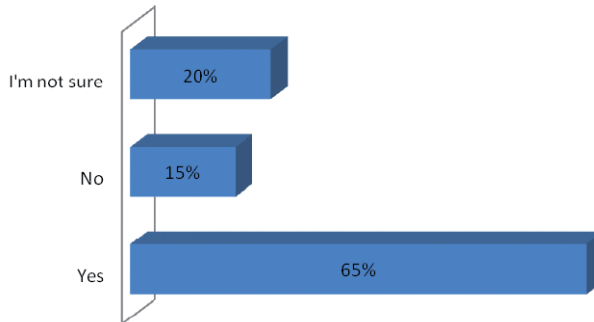


Figure 9. Question 8.

Q. 9: Difficulties when adding entries to the Glossary

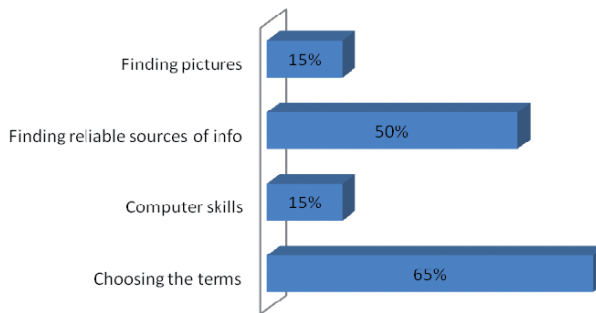


Figure 10. Question 9.

term” (since duplicated entries were not allowed) and “finding reliable sources of information” stand out. Providing a list of potential terms for the Glossary and increasing the number of links to online specialised dictionaries and maritime glossaries could help them devote their time to more interesting parts of this or other activities. Surprisingly enough, some students (15%) lacked the necessary basic computer skills to carry out the tasks efficiently; this shows, at least at this stage, that we cannot take students’ ICTs literacy for granted.

FINAL REMARKS

If the *Maritime Glossary* is believed to be a helpful activity to learn specialized vocabulary by 75% of the students, as shown in question 3, we wonder why this

figure changes to 65% when evaluating the activity in questions 6, 7 and 8. We deem the explanation to these numbers may be found in the open questions, which give us interesting and thought-provoking insights. The complaint about the time spent in doing the activity is the key answer. We have already seen how we could help overcome this problem; however, we cannot forget that becoming active learners requires investing more time and effort than playing the role of passive learners students are used to. It must also be stated that the challenging task of acquiring new roles is also time-consuming for the lecturer, who must act as counselor and guide through the whole process.

We believe that the activity could be improved in a variety of ways by exploiting more features of Glossary module. Just to name a few examples, enabling the autolinking would make possible that any instance of a glossary term anywhere in Moodle had a link to its entry; allowing all students to grade or add comments to all entries could make the Glossary a more collaborative activity; even inserting pronunciation links or attaching audio files to each entry would enhance the quality of the final glossary.

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MARITIME ENGLISH TEACHING AND ICTs: THE PRACTITIONERS' POINT OF VIEW

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ABSTRACT: This paper studies the contribution of ICTs to the teaching of Maritime English (ME) around the world as perceived by ME practitioners. We will briefly examine a number of software packages available in the market for the teaching of ME and then present and discuss the results obtained from a 27-item questionnaire focused on the use of ICTs for the teaching of ME. This questionnaire was distributed worldwide among ME practitioners and answers gathered indicate, among others, that there is an awareness on the possibilities ICTs offer for ME teaching but its implementation in ME courses is not normalised practice.

Keywords: Software assessment, Maritime English, ICTs.

INTRODUCTION

European countries are at present adapting their university degrees to the European Space of Higher Education (ESHE) in compliance with the Bologna Declaration. Maritime studies, being a part of the University degrees offered in Europe, are no exception to this. The changes brought about by ESHE oblige Maritime Schools (known as MET institutions) to resort to a credit system to signify workload, to reorganise courses offered, to update syllabus designs, to take into consideration competences and learning outcomes, to adapt teaching methodologies to teachers and learners' new roles, and to renovate teaching materials to satisfy the latest technological innovations pertaining to seaborne trade and the global demands of the shipping industry.

This work aims at examining the actual contribution of ICTs to the teaching of Maritime English (ME) around the world. For this purpose, we first offer an overview of some computer-based tools available for ME courses and then

discuss the results obtained from a 27-item questionnaire distributed worldwide which focuses on the role of ICTs within ME courses and the perceptions and attitudes of ME practitioners towards ICTs. This internationally-oriented questionnaire administered aims to shed light on the current use of ICTs by in-service ME practitioners worldwide.

ICT-RELATED RESOURCES FOR ME COURSES

ME may be regarded as a “minor” ESP variety (i.e., less popular or less known if compared with Business or Legal English, for instance); however, international concern about the role of ME for ships’ safety has redoubled efforts in developing efficient teaching/learning tools under the frameworks of international educational research programmes or international maritime institutions. The International ME Conference website (<http://www.imla-imec.com>) contains a link to a databank of ME resources in which ME materials of all kinds, including electronic learning material, are listed and detailed. Pritchard (2004) also provides a detailed assessment of available materials for book-assisted and computer-assisted ME teaching, whereas De la Campa y Bocanegra (2007) discuss and provide details about the availability of ICTs of various kinds with the same purpose. In this section some of the most outstanding computer-based tools for ME development are examined. Both on line and CD-supported software are covered with particular attention to the topics addressed and the aims pursued.

MarEng (2007) is an Internet-based ME learning tool, financed by the Leonardo daVinci programme of the European Union, and developed by a number of European maritime university departments and institutions together with maritime experts (seafaring professionals and other stakeholders in the shipping industry) which has provided a stimulus to ME courses around the world. MarEng simulates a voyage on board *MV Marina*, a virtual vessel, and provides four-skill practice on ME thanks to which learners can familiarise themselves to the English language as currently used on board and ashore. Organised into two proficiency levels of English (intermediate and advanced), topics covered range from general seafaring issues to radio medical advice, including cargo handling, port operations, radio communications or ice navigation, to name but a few. New developments in this project, currently underway, are expected to include new topics, an additional beginner or elementary level, a Teacher’s manual, and its adaptation to a mobile learning

environment which will hopefully allow for the use of the MarEng glossary in a mobile phone.

MEducation Sweden AB is an interactive multimedia education and training course for learning ME available from Videotel London and Seagull. This package is divided into three modules (“Familiarisation on board”, “Safety systems on board” and “Seamanship”) divided into units and providing read-aloud short texts, pictures and a glossary of terms pertaining to the topic. It also contains a dictionary and a test book. The test book contains three parts and learners are shown their results after completing the whole set. The dictionary provides a list of terms with pictures, spoken definitions and a translation into Swedish. It allows for the practice of pronunciation skills because users can record their voice and play and listen to their recordings.

The German company MarineSoft (MarineSoft, 2010) offers computer-based and web-based resources for the training of English language to seafarers within a classroom environment and also with e-learning purposes (i.e. blended learning). The package on Marine Communication Training is perhaps the most comprehensive as it offers, among others, basic training on grammar and maritime vocabulary, communication scenarios, interactive training on radio-communications, and everyday English practice on social language skills.

As regards online resources, a Norwegian company (Seagull, 2010), offers a computer-based learning package (also called modules) which are available on board and on line at any location with internet access (using an ad hoc system such as the Seagull Training System Online). Issues addressed are innovative as they go beyond the oral performance of seafarers and, thus, offer computer-based modules on report writing and on particular situations in which the oral language demand is high (such as superintendent’s inspection or pilot on the bridge).

The textbook by *The International Maritime Language Programme* (Van Kluijven, 2003) includes a CD-ROM with presentations (lectures) and accompanying tests that can be used to supplement classroom work. The CD-ROM displays links to 25 lectures divided into modules corresponding to the units in the main textbook. Each lecture is delivered through PowerPoint and is about two minutes long. It contains animated pictures, images, and a short written text which is read aloud as the explanation is developed and appears on the screen. There is a grammar section with explanations and exercises for further practice. Lectures are supplemented with tests, and their number varies

depending on the lecture. Tests are limited to three types of questions: “Fill in the missing word(s)”, “Right/Wrong” and “Write down, discuss or do your own presentation”. By clicking on the label “answer”, learners can check their results. Unlike most ICTs resources which are mainly focused on Maritime Communications English, here ME as used by engine room crew is also taken into consideration and given a prominent role.

A rather different tool is MarTEL (Maritime Tests of English Language). It has been developed through the support of the Leonardo Lifelong Learning Programme (European Union), with the aim of testing ME knowledge through a number of online tests at the same time international standards for ME are established (MarTEL, 2010). Such tests are developed under three different phases which conform to different seafarers’ ranks and cover the four language skills as well as the communication phrases (SMCP). Test-takers are awarded three levels of grading (Pass, Merit and Distinction) and they can access their test results on line about 30 days after completing the test (the test report includes, among others, each test section score, overall percentage/mark/grade together with the Common European Framework (CEF) equivalence, and comments on the test taker’s overall performance). Phase 1 is applied to Cadets in general, and Phases 2 and 3 to Officers and Senior Officers respectively belonging to the deck or engine room departments. Each phase includes tests, study guidelines, study units and a teacher’s handbook. MarTEL is at present undergoing its second pilot phase and will hopefully be available to MET European institutions in the near future for implementation on a monthly basis.

Finally, there are a number of software tools available on the market for the training of learners on the use and practice of the Standard Marine Communication Phrases (SMCP), a set of standard phrases to be transmitted by ships when communicating with other ships and shore-based stations. Some of these software tools have already been of our interest (De la Campa, Bocanegra & Rodríguez, 2007); therefore, what follows should serve to complement previous discussions:

- *Safe Sailing* (Murrell et al., 2009) provides practice on the SMCP through a variety of interactive exercises. By installing this software, learners can carry out a number of activities by choosing a SMCP topic, improve their listening skills by listening to standard phrases spoken by native English speakers, check their answers, print activities instead of completing it on screen, look for words in a glossary to check meaning or pronunciation,

create their own customised lessons and finally check their overall progress thanks to a progress tab.

- NewsLink's IMO SMCP is a voice and computer training package available on CD and recommended for use when wishing to improve listening SMCP skills (NewsLink Services, 2004). Its most outstanding feature is NewsLink's concern with multilingual crews as the standard phrases contained are spoken in four different accents (UK, Indian, Filipino and East European) to simulate real life situations on board multinational ships. The words making up each phrase are highlighted as they are pronounced in the four accents and images relevant to the situation spoken accompany each phrase.

ICTs AS PERCEIVED BY ME PRACTITIONERS

Instrument

With the aim of gathering information from ME practitioners on the actual use of ICTs in their ME courses as well as examining ME practitioners' attitudes towards ICTs for ME purposes, we developed and delivered a 27-item questionnaire worldwide via internet (addressed to individuals via email messages or large groups via newsgroups and associations' databases).

The questionnaire (available from the authors upon request) is divided into three main parts. Part 1 focuses on the respondents themselves (items 1-5), Part 2 on the use of ICTs (items 6-22) and Part 3 on ICTs and ESHE (items 23-27). The main highlights of these three sections are put forward below and the appendix contains graphs summing up main data discussed.

Results and Discussion

The questionnaire was returned by 79 colleagues from different parts of the world (see Figure 1) – Europeans making up the largest group of respondents (30 east Europeans and 25 west Europeans) and followed by East Asians. No questionnaires were returned from North America, South Africa or Oceania. Given the fact that the profile of ME teachers is very varied, from English language and literature graduates to Career specialists or former seafarers (see

Cole, Pritchard & Trenkner (2007) for a detailed categorization), for the purpose of this paper we are using the term “practitioners” to refer to the personnel (teachers, instructors or trainers) in charge of ME courses at recognized teaching institutions worldwide, regardless their teaching qualifications (English language or seafaring background, Ph.D., master degree, etc.), their teaching post (junior or senior lecturer, associate professor, etc.) and the teaching context (tertiary level, vocational schools, maritime academies or workplace training). Nonetheless, based on data obtained, it may be said that our average respondent is an European teaching at tertiary (University or Maritime school) level, with a 20-year teaching experience on the teaching of English language and ME, with no seafaring experience and about 20 students per class.

The technological facilities for the teaching of ME available may be recurrently found worldwide, from computers for classroom use to overhead projectors, internet facilities or simulators. No particular facility stands out. However, as regards the use of such technological facilities for the teaching of ME (see Figures 2 and 3) we could argue that “traditional” technologies and learning resources (such as projectors or players, and textbooks) coexist with “new” technologies (such as computers or simulators, and CD-Roms). ICTs are mainly used as an additional tool, this is, as a complement supporting face-to-face classroom hours or as an option in blended learning or suitable for learners’ self-study (see Figure 4). Apparently, ICTs do not conform the main focus of classroom work but are considered as additional tools facilitating teaching/learning. Regarding the knowledge and use of commercial software packages (see Figure 5), MarEng, the SMCP on CD-Rom and the IMLP are the most popular as they seem to be used extensively; however, other resources such as BES ME test, SECMA tool or Safe Sailing seem to be the least popular, probably due to accessibility difficulties (on the two first cases) and its recent date of publication in the last case. Apart from its innovative and updated contents as well as its technological quality, the main reason for the popular use of MarEng may be its readiness and accessibility as it can be downloaded from the Internet free of charge. Both MarEng and the IMLP address a variety of ME issues – i.e. maritime topics, thus allowing for its implementation in most ME subvarieties, from survival English for shipboard use to Engineering, Shipping law or Business ME (see Figure 6). Notwithstanding this generalised use, the popularity (and compulsory training worldwide) of the SMCP strengthens the use of ICTs for the practice of ME in ship-ship and ship-shore-ship radio-communications (see Figure 6 again), and, hence, for the practice of oral skills (see Figure 7 with

pronunciation, listening and speaking in the highest position). ICTs are considered to be useful as well for the teaching/learning of vocabulary and the practice of reading skills. To round up this second part of the questionnaire, the different beliefs towards ICTs highlighted by practitioners need consideration. As shown in Figure 8, there seems to be a general agreement on the “positive” implications of ICTs for ME courses as ICTs are believed to motivate, facilitate learning, provide opportunities for practising both language content and skills, and contribute to encourage learner autonomy and lifelong learning.

In line with these beliefs quantified in Figure 8, Part 3 aimed at gathering responses pertaining to the Bologna Reform. As already shown in Figure 1, the highest number of respondents (70) was ME practitioners at European institutions; hence, they are already faced with the task of adapting ME courses to ESHE requirements. Observing such requirements, ICTs are becoming basic tools that allow for more dynamic teaching strategies to be implemented in university courses, either along with classroom work or for self-study purposes. When surveyed, a majority of ME practitioners believe that the compulsory adaptation to ESHE will lead to an increase of students’ self-learning hours (65%) and, consequently, a decrease of face-to-face sessions (42%). When particularly asked about whether ESHE changes will make them use ICTs on a more regular basis, a 97% is positive, being self-learning time the most preferred option (see Figure 9). A 38% will try to implement ICTs in everyday classroom work (i.e. face-to-face sessions), however we feel that this percentage is still low if ICTs are to become normalised practice in ME courses. Moreover, as Figure 10 details, “new” technologies (such as simulators of various kinds or classroom-based computers) coexist with “old” technologies (such as audio players or projectors) in view of achieving that change of attitude already mentioned by that 97% of ME practitioners. It is as if the change lied in “digitalising” traditional formats of language delivery but little variation is detected as far as pedagogical innovation is concerned. At this point, it should be questioned whether the central aim of ME practitioners is the one raised by Chambers and Bax (2006: 465); that is to say, “to work towards a state where computers are fully integrated into pedagogy, a state of ‘normalisation’”.

CONCLUDING REMARKS

The availability of commercial software and other ICTs options within ME courses, although still scarce, pave the way to a promising area of pedagogy and research; however, ME practitioners' attitudes towards ICTs reveal that there is still a long way to the "normalisation" (Bax, 2003) of ICTs in ME teaching. Apparently, MET institutions and curricula are in general open to the implementation of ICTs, given the *a priori* technological focus of the profession; however, ME practitioners responses to the current and prospective use and implementation of ICTs within their courses indicate that: (1) there seems to be a general awareness on the positive contribution of ICTs to ME teaching; (2) ME practitioners seem to be aware of most tools commercially available and about what these can offer to their courses; (3) the "old techniques for new" principle seem to apply, especially when trying to implement ICTs following ESHE requirements; (4) ICTs are still to be regarded as additional instructional tools, more suitable for blended learning; (5) At this stage, very little is known about how ME pedagogy can benefit from ICTs.

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APPENDIX

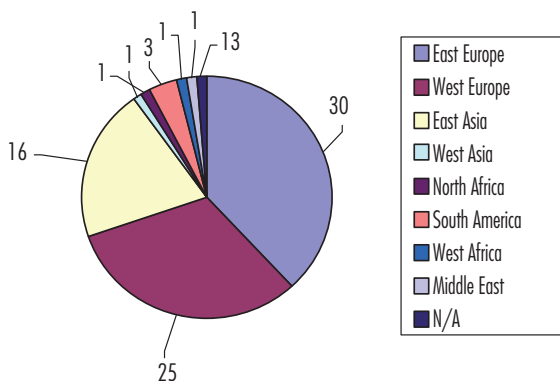


Figure 1. Number and origin of respondents.

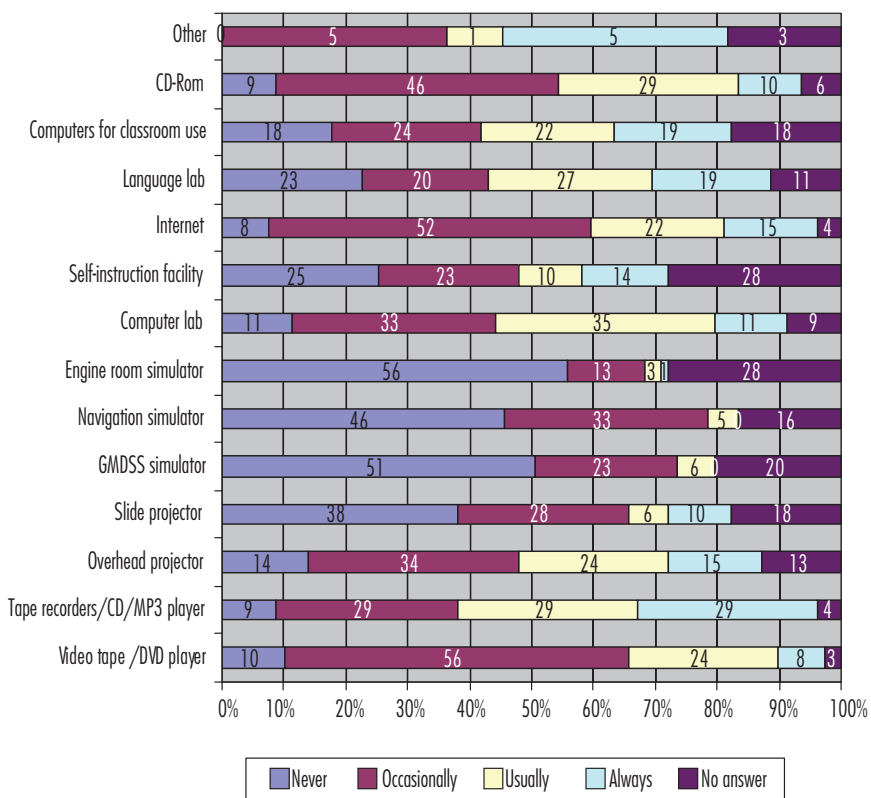


Figure 2. Technological resources used by ME practitioners.

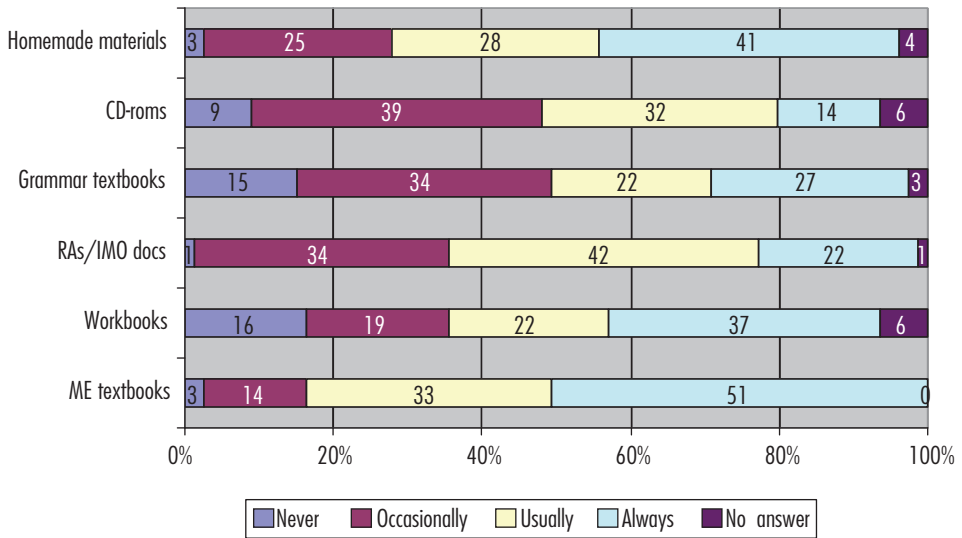


Figure 3. Materials used for ME teaching.

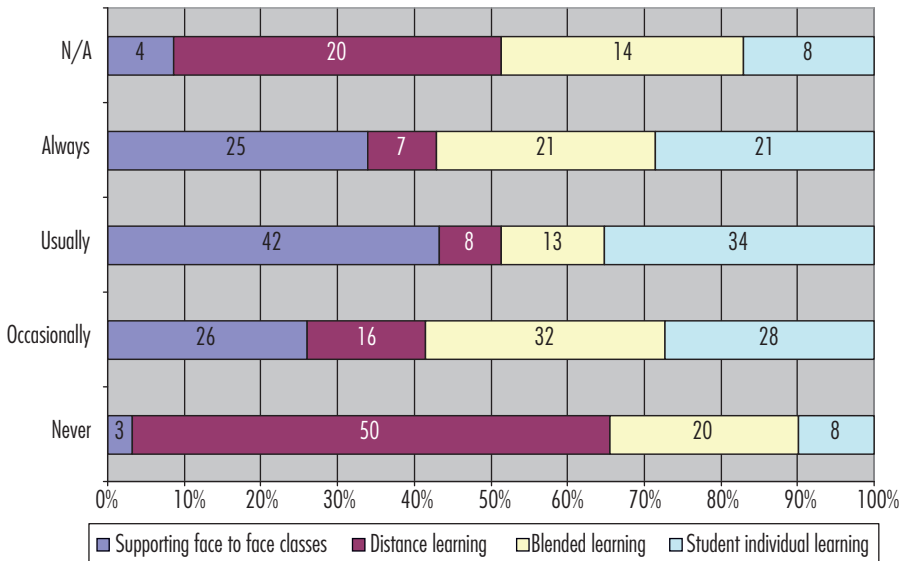


Figure 4. Frequency of use of ICTs.

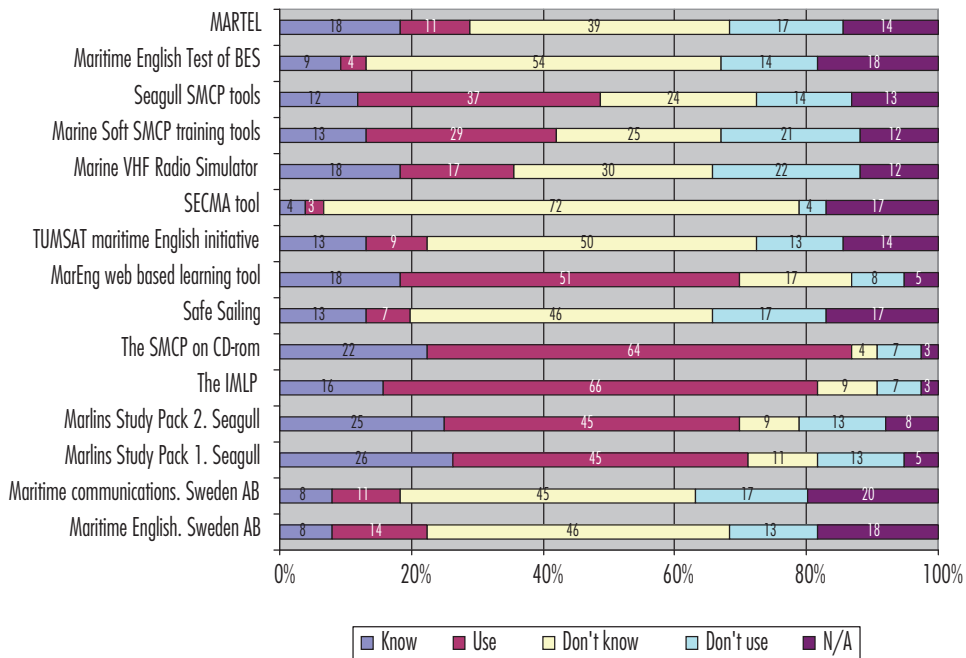


Figure 5. Knowledge and use of ICT-related resources.

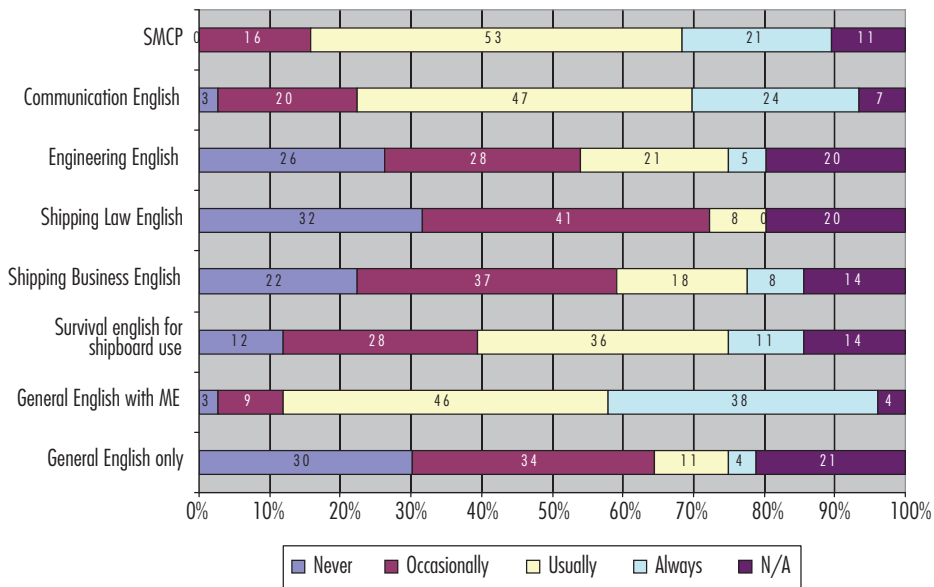


Figure 6. Use of ICTs according to ME subvarieties.

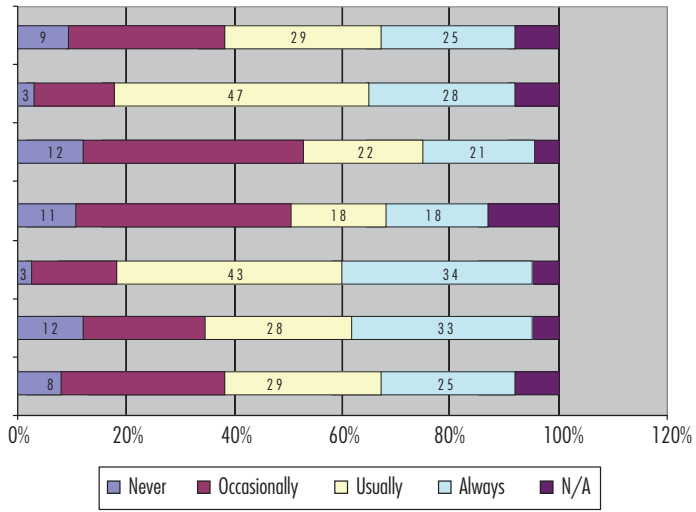


Figure 7. Purpose of ICT use.

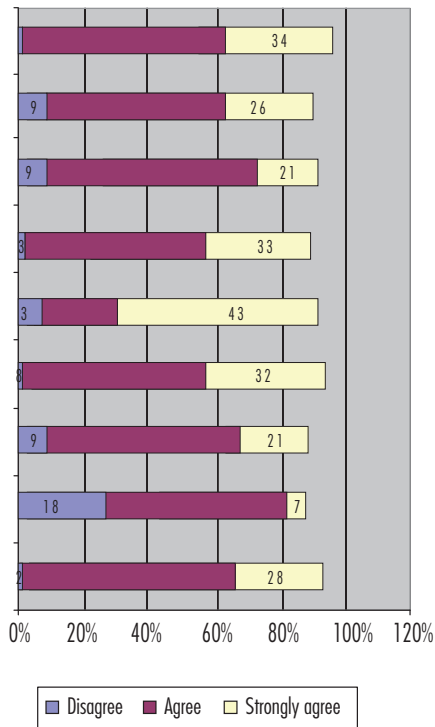


Figure 8. Beliefs towards ICT use in ME courses.

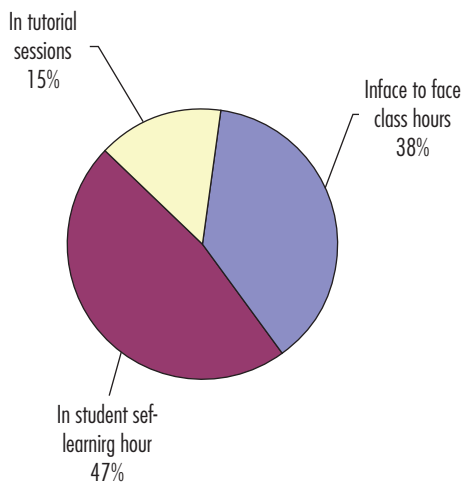


Figure 9. Implementation of ICTs in the adaptation to ESHE.

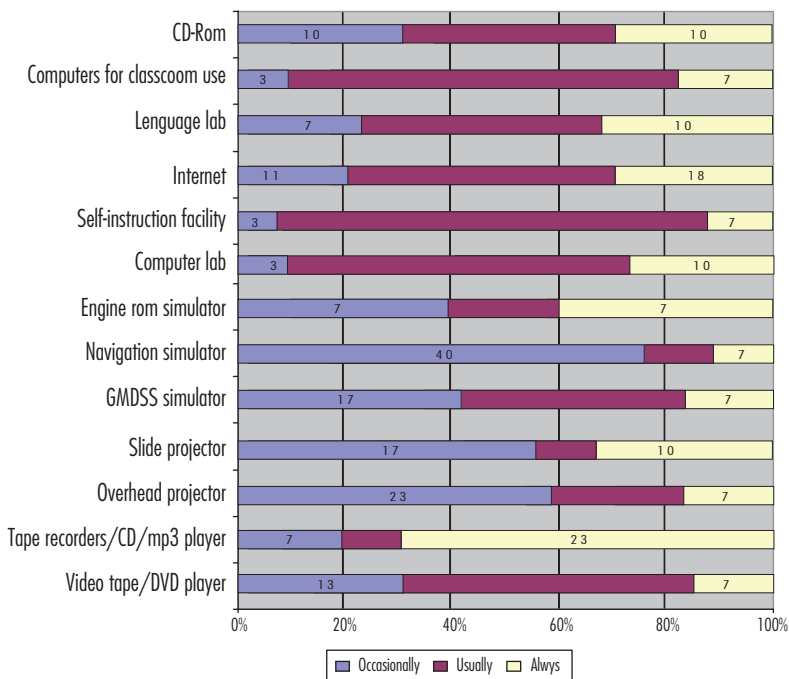


Figure 10. Use of particular resources in the adaptation to ESHE.

STRUCTURING STUDENT ESP PROJECTS: PREPARATION, ICT TOOLS, AND ASSESSMENT

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ABSTRACT: The paper explores individual project assignments in ESP (English for Specific Purposes) at the Higher School of Economics in St. Petersburg, Russia, including their general framework, specific features, and stages of preparation. It also examines linguistic skills and competences that project work aims to develop. The main focus is on minimizing possible pitfalls that teachers and students are likely to face while working on the projects. Project assessment and evaluation are also addressed in the paper.

Keywords: project work, skills and competences, English for Specific Purposes.

INTRODUCTION

The goal of the ESP course is to help students acclimate to their chosen professional or academic communities by developing the skills and knowledge they need to use language appropriately in those environments. In recent years, it has become apparent that ESP courses must also aim to develop a range of other competencies (informational, socio-cultural, etc.) in addition to language proficiency. Today communicative approaches to language learning and teaching are gradually being replaced by socio-collaborative ones and, according to Gruba (2004), debates about pedagogy now center on aspects of learner autonomy, collaborative project design, and appropriate assessment practices (623).

No one questions the fact that computer technologies play an important role in the development of these competencies, facilitating learners' autonomy and motivation. Arnó, Soler, and Rueda (2006) have confirmed the belief of many CALL (Computer Assisted Language Learning) researchers in stating that "it is no longer a matter of how to incorporate technology, but rather how to adapt LSP practice to a context of constant technological changes" (257). With regard to today's students, Prenski (2010) uses the term "Homo Sapiens Digital",

explaining that the role of educators is to let “students learn by using new technologies, putting themselves in the role of guides, context providers, and quality controllers” (1).

Many adherents of the integrative CALL approach stress the importance of the computer as a “toolbox” that stands ready to be used in the construction of projects (Toyoda & Harrison, 2002). However, the majority of works devoted to various technology-based projects describe collaborative group project work. Debski (2000) has coined the term PrOCALL (Project-Oriented CALL) to highlight large-scale collaborative activities.

In 2006, the Higher School of Economics in St. Petersburg, Russia, launched a series of new ESP courses in an effort to update the university’s foreign language curriculum in English. In these courses students have been asked to do a series of individual computer-based projects.

This paper aims to show that computers can be successfully used not only in collaborative, but also in individual project work, in the context of individual projects carried out by second-year students in ESP courses. In the first section I identify specific features of project-based work and explain what is understood by individual ESP projects, their stages and the general time frame to complete them. In the second section I explore the skills and competences that the project aims to develop, followed by a presentation and discussion of the difficulties and possible pitfalls that both teachers and students are likely to face while working on the projects, and suggestions to minimize and overcome them. Finally, I address the problem of project assessment and evaluation, arguing that peer assessment should be used in conjunction with teacher-based assessment.

PROJECT-BASED LEARNING TASKS

The project-based method is a complex method that enables teachers to design a language course based on students’ interests. It provides students with an opportunity to plan and control their learning activity autonomously and to build upon their knowledge independently. Discussing the reasons for using Internet-based project work in a language class, Dudeney & Hockly (2007) stress that projects can be interdisciplinary, “allowing for cross-over into other ... subject areas” (44). The authors believe that this approach gives the learner “a more ‘real-world’ look and feel, and provides greater motivation” (44).

For a learning project to be successful, it should be built upon the following principles:

- (1) There should be a problem that is both interesting and significant for the student, and which requires some research activity. To investigate this problem the student needs to possess some foundational knowledge in his/her chosen subject area as well as an appropriate level of English.
- (2) The stages and time frame of the project should be clearly identified and followed.
- (3) The biggest part of any project work should be done individually by the student or collaboratively by a group of students.
- (4) The outcome of the project should be visible and have some practical implication (for example, a project might result in an article in a wallpaper, poster, presentation, web page, or a conference report). In fact, the “visibility” of the final product is very important and distinguishes the project method from other similar methods of language teaching.

By individual ESP projects we mean preparatory work for a report on a given topic drawn from authentic sources. This work is done systematically at the end of each topic studied, resulting in 4 to 5 projects during the academic year.

Work on an individual project includes the following stages:

(1) **Articulating a research topic.** In this phase students choose a “narrow” topic from their broader area of study. For example, a student of sociology might choose to work on the subject of “Internet addiction,” a topic within the area of “Mass Media and Society.” It is very important to set a time frame and decide on an intended outcome of the project. In our case, students are asked not only to prepare an oral report (in which they are to speak from 7 to 10 minutes), but also to accompany the report with a PowerPoint presentation. In this stage the assessment criteria are also discussed. This work is done in class and usually takes from 1 to 2 hours of class time.

(2) **Collecting research materials** (conducted by students independently). In this phase students are asked to find several authentic sources on their chosen topic. They can be either research articles or magazine articles. As a rule, students find the materials on the Internet by searching specialized web-pages or e-libraries. Here enough time should be allocated for individual consultations in which students can get advice from the instructor on the quality of the chosen

sources and materials and to discuss any language difficulties they experience. It usually takes students about a week to complete this stage.

(3) **Outlining the report.** Here students summarize materials and synthesize facts and ideas from multiple sources, preparing citations from the sources used. It is vital that for the report to be logically structured.

(4) **Designing a PowerPoint presentation** of the report with appropriate visuals. To be able to do this, students need to have some basic skills in PowerPoint techniques. It takes from 1 to 3 days to complete stages 3 and 4.

(5) **Presenting the report** to the class and responding to questions. This phase requires direct communication with the audience: questions, discussions, and debates.

(6) **Assessment and evaluation.** The report is assessed both by the instructor and peers according to criteria that are previously distributed and discussed in class. The time allocated for the presentation and evaluation of reports may vary depending on the number of students in the group, and may take 1 or 2 class periods.

What enables us to call such activity “project work”? First, the student poses a research problem (even a small one) which is of interest to him or her and which is closely connected with the student’s specialization. In order to examine that issue the student needs to employ research methods, which are developed in successive projects. Second, project work cultivates students’ independent learning ability as they work on their reports mostly autonomously (both in the stages of collecting materials and in structuring their reports). The role of the instructor is restricted to that of a coordinator, facilitator, adviser, and motivator. The instructor often acts as an intermediary between students and the authentic language materials they find outside of class. Finally, the outcome of the project – i.e., the public presentation of the report – is highly “visible” and may have potential practical applications: students might apply the knowledge they acquired during the project work in other disciplines.

WHAT DOES PROJECT WORK BRING TO AN ESP COURSE?

Many researchers following Swales (1985) agree that the objectives of ESP go far beyond simply revealing subject-specific language use. Reviewing different

approaches to ESP course objectives, Basturkmen (2006) distinguishes, among others, the following groups of objectives:

- to develop target performance competencies;
- to teach underlying knowledge;
- to develop strategic competence (133).

The project work described in this paper may help to achieve some of these aims. For example, students are taught to structure their report and to present the information in public. In other words, they develop a ‘performance competence’ that they may need in their future profession.

Although all students have some basic knowledge of their discipline, they may come across some disciplinary concepts that are unknown to them. In such cases, the instructor of English has to introduce students to concepts from their disciplines (‘teach underlying knowledge’) in addition to other terms and expressions that they might need to express those concepts.

Project work also develops strategic competence (which is understood as “a means that enables language knowledge and content knowledge to be used in communication” (Basturkmen, 2006: 139) because it brings to the surface the knowledge of the subject area that students already possess, and creates opportunities for them to actualize this knowledge in English.

Overall, project work facilitates the acquisition and development of a range of language skills, such as using different reading strategies; summarizing; reporting findings from various sources; paraphrasing and using direct quotations; formulating questions; oral presentation skills; and communicative competence in general.

Apart from “purely” linguistic skills and competences, projects are aimed at developing a number of extra-linguistic skills. For example, to find the necessary information, students need to have effective web-searching techniques. Without any doubt, they know how to search the Internet, but very often their searching skills need to be further developed. While working on the project the students also learn to assess online resources and examine their own and others’ work critically. Project-based tasks help students to develop their ability to locate and use information and resources appropriately, to obtain relevant information, and to initiate, plan, organize and carry out a focused project. In other words, this work serves to promote independent learning, which is one of the intended outcomes of both ESP courses and the CALL initiative.

POSSIBLE PITFALLS

While working on technology-based projects, both students and instructors may encounter some difficulties. Some of them are discussed below.

Language Problems

The project work discussed in this article requires some basic knowledge of academic English. To succeed in conducting projects, students need to be familiar with academic lexis and grammar structures as well as have some academic reading skills. As projects involve a good deal of reading, it is very important that before doing project work, students develop such skills as understanding the main ideas of the text, distinguishing the main ideas and supporting details, evaluating the writer's point of view, skimming to understand the gist of the argument, or scanning to find specific information. For this reason it is very important to incorporate elements of EAP (English for Academic Purposes) into ESP courses from the very beginning.

Web Research

It has been commonly accepted by both CALL researchers and instructors that the Web is "a potentially useful corpus for language study because it provides examples of language that are contextualized and authentic, and is large and easy searchable" (Wu, Franken, & Witten, 2009: 249). However, the authors warn that if tasks or exercises involve direct Web search, instructors "cannot rely on predicting what they will retrieve or knowing exactly what their students will see" (Wu et al., 2009: 251). Therefore, students should be given very clear instructions beforehand about the kind and quality of sources to be used in projects.

They should be also advised to search certain websites (including e-libraries) that contain texts of certain genres. In the case of preparing individual projects, students should clearly distinguish a research article from other sources. As the practice of using project work in the course of ESP shows, the most widespread authentic source that the students are likely to use is Wikipedia. This is quite understandable as the first hyperlink on practically any topic in any search engine

will be a hyperlink to Wikipedia. And though some authors view it as a valuable source for doing project work (Dudeney & Hockly, 2007: 44), sometimes it is necessary to restrict the students in their use of this source, as the articles in Wikipedia summarize information on the topic and the student does not need to use his or her analytical and critical skills to prepare a report. Students are advised to use this online encyclopedia only as a starting point for further search.

It is also advisable, especially on the first project, to make a list of websites and resources from e-libraries to be used by students. However, they need to understand that this list is open and that they can personally add any website that contains proper information on the chosen topic.

Use of PowerPoint Techniques

When used correctly, PowerPoint presentations can be a valuable tool to attract the audience's attention to the content of the report. To achieve this effect, students need to be familiar with some general rules of designing an effective PowerPoint presentation. Among the common errors that the students make is the overuse of text on the slides and the overuse of visual effects. Because the PowerPoint program provides a wide range of possibilities for creating visual and sound effects and is rather easy to use, sometimes students take more interest in preparing the presentation rather than the report. And although the ability to use PowerPoint presentations spreads far beyond a language class, language teachers need to instruct students by giving them a set of rules and, if possible, by demonstrating good examples of visual presentations in public speaking in English.

ASSESSMENT AND EVALUATION

Assessment is generally seen as a key component of any teaching environment (Gardner & Miller, 1999). When project work is used in a language course, instructors face the dilemma of what to assess: correctness in language use, or other factors, such as logical exposition of the report, quality of visual support, etc. It is a common belief among teachers as well as students that only language proficiency should be assessed in a language class. Nevertheless, if the goals of the language course are not restricted to the development of communicative

competencies, the objects of assessment should be modified accordingly. Assessment needs to be based on the general quality of the report i.e., it must take into account, besides phonetic, lexical and grammatical correctness of the language, a range of other criteria, such as: (a) the level of the materials studied; (b) the structure and logic of the report; (c) the ability to summarize; (d) the ability to refer to and cite different sources; (e) the ability to draw conclusions; (f) the ability to use PowerPoint presentation techniques; (g) oral presentation skills (the ability to speak using the notes, to catch and hold the audience's attention; (h) the ability to interact with the audience. This list is not fixed and can be altered at the beginning of each project.

To ensure the overall success of any project work, it is crucial that students participate in the evaluation process. Little (2003) highlights the importance of peer assessment for the development of self-direction: "The capacity for private reflection grows out of the practice of public, interactive reflection, and the capacity for self-assessment develops partly out of the experience of assessing and being assessed by others" (Little, 2003: 223). Peer assessment helps students not only critically examine the work of their peers, but also better understand their own achievements.

CONCLUSION

In conclusion I want to emphasize that project work can be successfully used not only for language learning purposes, but also for developing a wide range of general competences. The practice of using project-based tasks in the ESP course demonstrates that projects can increase learners' interests, activity and motivation, and create an atmosphere in which students are not only willing, but also eager to research their chosen problem and present their research findings.

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“VALUE ADDED TEACHING”: CORPUS-BASED METHODS FOR LSP TEACHING

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ABSTRACT: Corpora have assumed a strong foothold in learning and teaching during the last decade and their application in LSP teaching is particularly beneficial, given the lack of conventional teaching materials in several domains. In this paper, we present a corpus-based approach to teaching business Russian at the University of Leeds, describing how we have enhanced our existing corpus-based tools to facilitate vocabulary acquisition and register recognition and differentiation.

Keywords: LSP, corpus, frequency lists, genre classification.

INTRODUCTION

Corpora have assumed a strong foothold in learning and teaching during the last decade and their application in Language for Specific Purposes (hereafter, LSP) teaching is particularly beneficial, given the lack of conventional teaching materials in several domains. In this paper, we present a corpus-based approach to teaching business Russian at the University of Leeds, describing how we have enhanced our existing corpus-based tools to facilitate vocabulary acquisition and register recognition and differentiation.

The paper was motivated by students' concerns over the lack of relevant materials for learning business Russian with English-language commentary. Students complained that there was not a course book containing materials on Russian business terminology, conventions in formal etiquette and style or sample official documents of various kinds (CVs, covering letters, letters of complaint, etc) – documents which students are expected to produce in class tests and for homework assignments (and, of course, in the “real world”). We describe

how corpora can be used to compensate for the lack of such materials and how a corpus-based approach is particularly relevant to LSP teaching.

The most important areas that need to be addressed on the business Russian module are: (1) vocabulary acquisition and (2) register recognition and differentiation. The module is taken at Level 2 (in students' third year at university) and, although by this stage students have studied Russian for at least two years and have spent nine months in Russia, it is their first "real" experience of formal writing. The lexicon of business Russian is different to that of other genres that students are already familiar with, and many key words and phrases are not included in standard dictionaries. Furthermore, even at the (upper-)intermediate level, students are not fully competent in recognising and successfully differentiating between different varieties of written Russian. Our aim is therefore to use corpora to facilitate vocabulary acquisition and to enhance students' ability to recognise and use formal expressions appropriately. To achieve these aims, we have developed our corpus-based tools to:

- (1) make it easy for users to compile frequency lists;
- (2) automatically extract collocations;
- (3) automatically classify text genres and domains;
- (4) rank concordance lines according to their difficulty;
- (5) allow users to collect and annotate their own corpora.

SIMPLIFYING AND ENHANCING CORPORA FOR TEACHING

In most cases, corpora are not designed for language learners and must be adapted for language teaching. As large collections of texts corpora, especially those that are unannotated, are of little practical value to language learners. What, for example, can you do with the output of a corpus search? Other than for reference a list of concordance lines is of little use to teachers and their students. A corpus that is parsed and tagged is more useful; language learners can make more elaborate corpus queries, searching for, say, a noun in a particular case, a verb in a particular tense or a multi-word expression. However, users need in many cases to be familiar with regular expressions, as most interfaces require grammatical information to be entered as a string code. Assume that a language learner wants to see which adjectives are commonly used in the expression *to*

make an impression between the words *an* and *impression*. In many interfaces they would have to enter the following string code (CQP syntax):

[lemma=»make»] [pos=»DT»] [pos=»JJ»] [word=»impression»]

The string tells the regular expression processor to look for any form of *make*, a determiner (DT) – this allows for an article before the adjective; a more specific search for examples that occur with the indefinite article could be achieved by replacing [pos=“DT”] with [word=“a”] – an adjective (JJ) and the word *impression*. Such a counter-intuitive method hinders corpus use and overwhelms many users.

Moreover, the content of many of the examples that the concordancer generates is too difficult for all but advanced students. Or many examples that are generated are not relevant: users might have to sift through hundreds of examples to find just one or two appropriate ones. For teaching and learning, tutors and their students need to be able to refine their search by filtering concordance lines according to several parameters.

English Parts of Speech		
<input type="checkbox"/> Noun (any) <input type="checkbox"/> Noun (singular common) <input type="checkbox"/> Noun (plural common) <input type="checkbox"/> Noun (singular proper) <input type="checkbox"/> Noun (plural proper)	<input type="checkbox"/> Verb (any part) <input type="checkbox"/> Verb (base) <input type="checkbox"/> Verb (past tense) <input type="checkbox"/> Verb (-ing) <input type="checkbox"/> Verb (past participle) <input type="checkbox"/> Verb (-s) <input type="checkbox"/> Modal Auxiliary	<input checked="" type="checkbox"/> Adjective (general) <input type="checkbox"/> Adjective (comparative) <input type="checkbox"/> Adjective (superlative)
<input type="checkbox"/> Adverb (general) <input type="checkbox"/> Adverb (comparative) <input type="checkbox"/> Adverb (superlative) <input type="checkbox"/> Adverbial particle	<input type="checkbox"/> Pronoun (indefinite) <input type="checkbox"/> Pronoun (personal) <input type="checkbox"/> Pronoun (possessive)	<input type="checkbox"/> Wh- pronoun <input type="checkbox"/> Wh- possessive pronoun <input type="checkbox"/> Wh- determiner <input type="checkbox"/> Wh- adverb
<input type="checkbox"/> Conjunction (coordinating) <input type="checkbox"/> Conjunction (subordinating) <input type="checkbox"/> Preposition <input type="checkbox"/> Interjection	<input type="checkbox"/> Determiner (general) <input type="checkbox"/> Determiner (prefix) <input type="checkbox"/> To (infinitive marker) <input type="checkbox"/> Cardinal number <input type="checkbox"/> Existential there	<input type="checkbox"/> Possessive particle <input type="checkbox"/> Foreign word <input type="checkbox"/> List item marker <input type="checkbox"/> Symbol

Figure 1. English Parts of Speech Window.

Query Editor

Word	<input type="text" value="make"/>	<input type="radio"/> this is a word <input checked="" type="radio"/> this is a lemma <input type="radio"/> find the lemma of this word	<input type="button" value="Edit POS Tags"/> <input type="button" value="Clear POS Tags"/>
<input type="button" value="RemoveThisWord"/>	<input type="button" value="AddIntermediates"/>	<input type="button" value="AddAnotherWord"/>	
Word	<input type="text"/> (Only POS tags set)	<input checked="" type="radio"/> this is a word <input type="radio"/> this is a lemma <input type="radio"/> find the lemma of this word	<input type="button" value="Edit POS Tags"/> <input type="button" value="Clear POS Tags"/>
<input type="button" value="RemoveThisWord"/>	<input type="button" value="AddIntermediates"/>	<input type="button" value="AddAnotherWord"/>	
Word	<input type="text"/> (Only POS tags set)	<input checked="" type="radio"/> this is a word <input type="radio"/> this is a lemma <input type="radio"/> find the lemma of this word	<input type="button" value="Edit POS Tags"/> <input type="button" value="Clear POS Tags"/>
<input type="button" value="RemoveThisWord"/>	<input type="button" value="AddIntermediates"/>	<input type="button" value="AddAnotherWord"/>	
Word	<input type="text" value="impression"/>	<input checked="" type="radio"/> this is a word <input type="radio"/> this is a lemma <input type="radio"/> find the lemma of this word	<input type="button" value="Edit POS Tags"/> <input type="button" value="Clear POS Tags"/>
<input type="button" value="RemoveThisWord"/>	<input type="button" value="AddIntermediates"/>	<input type="button" value="AddAnotherWord"/>	
Search description	lemma "make" then any word with part of speech tag "DT" then any word with part of speech tag "JJ" then word "impression" within the same sentence		
Query syntax	<input checked="" type="radio"/> CQP		<input type="radio"/> CSAR
Query string	<input type="text" value='[lemma="make"] [pos="DT"] [pos="JJ"] [word="impression"] within s'/>		
<input type="button" value="OK"/> <input type="button" value="Apply"/> <input type="button" value="Clear"/> <input type="button" value="Cancel"/>			

Figure 2. The Query Editor for multi-word searching.

Corpora must therefore be modified in two ways for LSP teaching. First, corpus tools need to be made simple so that non-specialists can use them. Second, more elaborate tagging is needed to show stylistic variation as well as other types of variation in language use. We have already taken steps to make our interface more user-friendly by replacing string codes with a new system whereby

grammatical information is selected by ticking check-boxes (Figure 1) and we have simplified multi-word searching (Figure 2 [<http://corpus.leeds.ac.uk/it/>]).

CORPUS-BASED APPROACHES TO VOCABULARY ACQUISITION

The acquisition of a core discipline-specific vocabulary can provide a solid basis for delivering modules like business Russian, French for lawyers, Spanish for medics, and so on, whose core lexicon is not included in standard bilingual dictionaries or course books. Corpora can be used to generate frequency lists of the most common words and phrases in various LSP domains, and the benefits of this approach are clearly demonstrated by Butler (1974). Butler used frequency lists extracted from a small corpus (94,000 words) of systematically selected chemistry papers to “permit second-year chemistry undergraduates (or postgraduates), with no previous knowledge of German, to read papers from German chemical journals for comprehension and, where necessary, for translation” (50). Using exercises built around the most frequent words and collocations from his “chemistry” corpus, Butler aimed to equip his students with the requisite reading skills within ten teaching hours (plus 20 hours of independent study). The results were “gratifyingly successful” (53).

Quick acquisition of discipline-specific vocabulary is highly desirable in LSP teaching. Take, for example, the case of PhD students who need to learn a foreign language from scratch for their research. Intensive undergraduate ab-initio programmes are not suited to researchers’ language needs; much of the material covered at Level 1 is of little relevance to researchers, while many important points of grammar and language use (from the researcher’s perspective) are not covered at all. Gaining the necessary reading competence to understand academic texts is quite straightforward: academic texts are characterised by lexical and stylistic repetition; therefore, corpus-derived frequency lists are particularly effective. The same holds for grammar: teaching can be structured around the grammatical constructions that occur most frequently in academic texts. As specialised intensive language for research courses are not practicable at many institutions (especially in the case of less commonly taught languages) and there are concerns over the sustainability of established courses, new, cost-effective modes of delivery are highly sought after. A corpus-based, vocabulary-oriented approach is a realistic and inexpensive way of enhancing reading skills quickly and effectively.

Frequency lists

Until recently, corpus users needed to ask computer specialists to compile frequency lists on their behalf. Nowadays, however, the compilation of frequency lists has become a standard feature on corpus interfaces, and users can use our tools to generate lists of single- and multi-word terms.

Table 1. Russian keywords sorted by the Log-likelihood score of their significance.

Single words	Multiwords
банк (bank)	ценные бумаги (securities)
предприятие (enterprise)	юридическое лицо (organisation)
кредит (credit)	денежные средства (monetary assets)
договор (contract)	федеральный закон (federal law)
товар (product)	заработный плата (salary)
рынок (market)	бухгалтерский учет (accounting)
финансовый (financial)	земельный участок (land plot)
налог (tax)	акционерное общество (public company)
страхование (insurance)	рынок ценных бумаг (capital market)
цена (price)	основные средства (fixed-capital assets)
учет (accounting)	фондовая биржа (stock exchange)
ценный (valuable)	процентная ставка (interest rate)
денежный (money-adj)	фондовый рынок (stock exchange)
имущество (property)	арбитражный суд (arbitrage)
налоговый (tax-adj)	недвижимое имущество (real estate)
прибыль (profit)	система управления (system of management)
государственный (state)	налоговые органы (tax authorities)
страховой (insurance-adj)	договор страхования (insurance contract)
стоимость (cost)	инвестиционный фонд (investment fund)

Single-word terms from specialised corpora are detected by Log-likelihood scores for their frequencies against a reference corpus (Rayson and Garside, 2000). An adaptation of the commonly-used Bootcat algorithm (Baroni and Bernardini, 2004) is used for the extraction of multi-word terms. For example, we can start

with the frequencies of Russian words in the overall Internet corpus (Sharoff, 2006) and the frequencies from the business corpus to get the list of keywords. Then the list can be extended by finding commonly used sequences of several words that contain at least one of the words in the keyword list. The importance of multiword units can be highlighted by non-compositional expressions, like *ценные бумаги* (securities) which literally means “valuable papers”.

Besides using existing corpora to generate frequency lists, users may also compile and annotate (i.e. lemmatise and tag) their own collections of texts from, say, advertisements, CVs and covering letters, letters of complaint, political leaflets, etc. They can then extract the most frequent words and collocations from their corpora. This is a major benefit of corpus-based learning: while the lexicon of such a breadth of highly-specific domains cannot be represented in printed language-learning resources, which often take years to produce and generally cater for wider groups of users, corpus-derived frequency lists can be created within hours and, more importantly, can cater for the individual.

Automatic Extraction of Collocations

Tools for indentifying and displaying collocations in large corpora are now well established in many interfaces. There is an unresolved issue with selecting the most appropriate score to rank the collocates (Evert & Kren, 2001), but usually the Log-likelihood score is again a reasonable choice, as it takes into account the ratio of frequencies as well as the actual number of examples (Dunning 1993). Our tools can rank collocations either by their joint frequency or by several statistical scores (including Log likelihood).

Language learners often produce odd collocations, usually caused by interference from their native language (L1), and collocational information in most dictionaries is scant – obviously because space is limited. The automatic extraction of collocations is therefore another corpus-based function that can be used to good effect in learning and teaching and it exceeds the capabilities of existing printed resources. In keeping with the business theme of this paper, let us look at two examples from Russian: adjective + *рынок* “market” and *произвести* “to make, produce” + noun. Our tools allow users both to grammatically tag collocates and to select their position in relation to the search word; therefore, we can tell the corpus to show adjectives on the left of *рынок* (see Figure 3) and nouns on the right of *произвести* (see Figure 4). We used our

Leeds-based Russian Business Corpus for both queries. To get a better idea of how these collocations are used in context students can then click on the “Examples” tab and view the concordances.

Collocation	Joint	Freq1	Freq2	LL score	Concordance
фондовый рынок	302	3543		697.50	Examples
российский рынок	185	17829		230.38	Examples
вторичный рынок	94	838		229.70	Examples
мировой рынок	125	5542		203.17	Examples
валютный рынок	110	4543		182.61	Examples
внутренний рынок	111	4954		179.98	Examples
внебиржевой рынок	47	266		126.24	Examples
первичный рынок	58	1506		109.67	Examples
финансовый рынок	85	14627		81.79	Examples
страховой рынок	58	7026		65.47	Examples

Figure 3. Top ten adjective collocates to the left of рынок in the Russian Business Corpus.

Collocation	Joint	Freq1	Freq2	LL score	Concordance
произвести продукция	84		8882	150.85	Examples
произвести платеж	67		5724	127.26	Examples
произвести расход	39		8833	55.09	Examples
произвести расчет	37		7445	54.40	Examples
произвести переворот	10		207	26.05	Examples
произвести затрата	17		5014	21.76	Examples
произвести выплата	14		4096	17.97	Examples
произвести ремонт	12		2402	17.63	Examples
произвести продукт	12		4870	13.50	Examples
произвести оплата	12		5494	12.81	Examples

Figure 4. Top ten noun collocates to the right of произвести in the Russian Business Corpus (collocates are displayed in their lemma form).

“TAGGING FOR TEACHING”

Besides morphological and semantic tagging, now customary in many modern corpora, several other types of tagging can be used to enhance language learning. In this section, we look at genre classification and difficulty ranking.

Genre classification

Methods of tagging corpora are becoming more sophisticated and a major advance in corpus-based language teaching is the ability to annotate corpora to show stylistic variation. On the basis of previous research in which parameters for automatic genre detection and classification of texts from the Web (Sharoff 2007), we have been able to classify texts into such general genre categories as news items (‘reporting’), legal texts (‘regulations’), FAQs, advice (‘instruction’), promotional materials (‘advertising’), listings (‘information’) and everything else (‘discussion’).

For business Russian we have been able to apply formality tags so that business clichés can be extracted to help students differentiate between formal and neutral language use as well as to help them achieve a better understanding of register and to allow them to compile their own lists of generic phrases used in official writing. Such stylistic tagging has a much wider application and can be used to display other features such as non-standard or regional use.

Difficulty Ranking

Although corpora have become a peripheral part of the teaching toolkit, many teachers have highlighted that their use is limited in that students find it hard to understand the content of the concordance lines. This is not surprising: corpora were not designed with the language learner in mind and texts were not selected according to how difficult they are to read. As a consequence, only advanced language learners have full access to corpus-based learning, and even they must sift through many examples to find just one or two appropriate ones.

Some recent advances have been made in this respect. Sharoff et al. (2008) established parameters for assessing the difficulty of texts and individual sentences in Russian (and other languages) and mapped the result to the CEFR levels.

Methods have also been developed for automatically ranking concordance lines according to their difficulty by measuring lexical and syntactic complexity and sentence similarity (Segler, 2007; Kilgarriff et al., 2008; Kotani et al., 2008). These methods have been integrated into our system as additional options for sorting the concordance lines. This means that the difficulty level of the concordance lines displayed can be matched to the experience level of the students. Our user interface provides simple intuitive components, such as sliders, to ensure that setting the desired level of difficulty is easy. Even though, like other automatic processes, difficulty tagging is not completely accurate it still makes the tutors' task of selecting appropriate examples from the concordance lines much easier. Like all the processing features in our system difficulty tagging has been implemented in a plug-in fashion so that it can easily be replaced as better methods are developed.

CONCLUSIONS

We have shown in this paper several ways in which corpora can facilitate and enhance learning and teaching. A corpus-based approach to business Russian and to LSP teaching more generally has many benefits and helps to compensate for the lack of teaching materials, especially with respect to vocabulary acquisition and register recognition and differentiation.

Corpus-derived frequency lists can provide the basis for LSP courses and they can be used to meet the needs of *individual* language learners, unlike conventional course books that cannot cover vocabulary across the full breadth of LSP subjects. By uploading and annotating their own texts our users can generate frequency lists within their own area of research (even for very specific types of language such as that of instruction manuals or invoices). Corpora, not restricted by space limitations, can provide language learners with more comprehensive lists of collocations than printed dictionaries. A corpus-based approach to LSP teaching can also be used to facilitate register recognition and differentiation. Automatic genre classification allowed us to tag business clichés and formal expressions to help students extract set phrases and use them in their own sample official letters. Other tags can be used in other LSP domains to help learners differentiate between genres and registers more accurately.

Our study also shows that, although useful for LSP teaching, corpora require special tools and “plug-ins” to meet the needs of language learners. Such tools

are being developed at Leeds and many other institutions, yet they are still in their infancy and are in need of further refinement. More research and collaboration between computer scientists and researchers in other fields is needed to ascertain the tools and functions that corpus users in various disciplines require. However, it is fair to say on the basis of existing evidence and expected technological advances that corpus-based tools will become easier to use and more functional, tagging will become more accurate and corpora will play an increasingly important role in research and teaching in various academic disciplines, including LSP teaching and language teaching more generally.

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THE USE OF BLOGS AS INTERACTIONAL FEEDBACK IN THE EFL CLASSROOM: A WAY TO FOCUS ON FORM THROUGH CONSCIOUS REFLECTION

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ABSTRACT: In general terms, there are two ways to view the role of an EFL (English as a Foreign Language) teacher. One is as the administrator of formal instruction and the other is as the promoter of interaction. The main aim of this paper is the justification of an activity that combines both the teaching of grammar and the reflection upon formal aspects of the language together with the use of it for communicative purposes. We present here the use of blogs as an effective way to teach English grammar in a communicative context.

Keywords: EFL, teaching methods, communicative learning, blogs.

INTRODUCTION

In general terms, there are two ways to view the role of an EFL teacher. One is as the administrator of formal instruction and the other is as the promoter of interaction. Traditional teaching methods have seen the importance of formal instruction devoted to the explanation of grammatical rules and structures of the language whereas more recent research has focused on the importance of being able not only to get proper, accurate knowledge of the language but of its actual use.

Traditionally, in the EFL classroom students have been encouraged to produce and repeat the structures and the grammatical rules they have been taught previously with little or no real opportunities to put them into practise in real contexts. Besides, written tests have been used as the best way to evaluate their linguistic knowledge.

The main aim of this paper is the presentation and justification of an activity that combines both the teaching of formal aspects of the language and real communication in the classroom. Teaching English grammar and giving the students opportunities to exercise themselves in fluency work is the main

objective of this activity: keeping a blog as a virtual learning diary. That is, we want our students to develop “their own transitional dialect of English as naturally as the classroom situation permits, by being given material to communicate with and opportunities” to do it. (Brumfit, 1991:48)

THEORETICAL BACKGROUND

In the 1960s there were two dominant methods for teaching a second language (L2): the grammar-translation method and the audiolingual method. Very different theories of language learning were the bases of both of them. The former rested on the belief that language learning was largely an intellectual process of studying and memorizing bilingual vocabulary lists and explicit grammar rules. The latter drew on behaviorist theories of learning which emphasized habit formation through repeated practice and reinforcement. However, although there had been a number of studies investigating the effects of teaching and learning very little was known about how learners actually learnt a second language. L2 learning, at that time, had simply not been rigorously studied.

Starting from the 1960s, two approaches have been developed in order to study this. The first consists of attempts to investigate the relative effectiveness of different ways of teaching languages in terms of the materials presented to the learner. And the second approach involved the empirical study of how learners acquired a second language. Firstly, this took the form of studies of errors and case studies of individual students learning the target language not in the classroom but through exposure to it in natural settings. These studies gave clear evidence that L2 learners, like children acquiring their first language (L1), accumulated knowledge of the language they were learning in a gradual and highly systematic way. That is how studies of L2 learning started, giving birth to Second Language Acquisition (SLA) Research.

Much of this early work in SLA was pedagogically motivated. That is, researchers conducted studies of L2 learning with the intention of addressing pedagogic issues. SLA research has grown exponentially since its beginning in the 1960s. In fact, a number of sub-fields of enquiry, each supported by its own theoretical framework and often conducted by means of very different methodological procedures, have appeared since then.

Taking into account the sub-field of SLA devoted to the study of form-focused instruction and the research to investigate whether teaching explicitly particular grammatical structures actually results in their being learnt, we will try to connect both theory and practice with the aim of developing methodological options for teaching grammatical structures in an effective way. We assume Ellis' answer to whether formal instruction works.

The results are not easy to interpret, but, increasingly, they have shown that, providing certain psycholinguistic constraints are taken into consideration, grammar teaching works. In particular, grammar teaching seems to help learners perform grammatical structures with greater accuracy and also to progress through developmental sequences more rapidly (Ellis, 1997: 77).

One reason why it can work, he argues, is that explicit instruction is necessary for learners to be able to notice features in the input which they receive, which can then become part of their acquired knowledge.

On the other hand we totally agree with Widdowson in that

[T]he problem is that students, and especially students in developing countries, who have received several years of formal English teaching, frequently remain deficient in the ability to actually use the language, and to understand its use, in normal communication, whether in the spoken or the written mode. (Widdowson, 1981: 117).

Taking these assumptions into consideration, we strongly believe that some attention to grammar and formal aspects of the language should be included in the EFL classroom. Nevertheless, we consider that both formal instruction and interaction should go hand in hand in the English class.

THE BALANCE BETWEEN ACCURACY AND FLUENCY

The main problem many English teachers find is that of linguistically competent learners who can build correct sentences and perfect structures but who are unable to communicate with other students or even with the teacher using the target language. A big number of Secondary School teachers are so concerned with the P.A.U. (Prueba de Acceso a la Universidad) exam that they completely forget the importance of teaching how to use the language in real social contexts and how to communicate with it. This exam focuses mainly on the writing skill of the student and many teachers simply want students to pass it

and to have access to university. This is the reason why they keep practising grammar and formal aspects of the language, giving little or no importance at all to the cultural and social dimension of learning a foreign language.

Using Newmark's example (1981) we can understand the kind of learner we are talking about. A linguistically competent young student, even an intelligent one, at a disco would be able to produce these sentences: "Are you a match's owner? or Do you have illumination?" (161). Although well-formed and grammatically correct, nobody would use these expressions in a real context. But many of our students would be unable just to say: "Got a match? or Do you have a light?".

As a consequence, Universities are receiving lots of students who are communicatively incompetent, who are unable to use the language just to have their cigarette lit or to write a lab report, a letter or their own C.V. or to fill in a form or to talk on the phone or even to chat with other students. This is a problem that we should not take for granted in a moment in which students from all over Europe have the possibility to study at any faculty. As a matter of fact, all students will be asked to certify a B1 level (Common Reference Levels) in a second language to obtain their university degree. The truth is that many of our students will find real difficulties to achieve this if language teachers do not assume our own responsibility and try to adapt ourselves to the new realities of the classroom.

COMMUNICATIVE LANGUAGE COMPETENCES

As stated in the *Common European Framework of Reference for Languages (CEFR)* users and learners of a language can be seen as "social agents", i.e. members of society who have tasks (not exclusively language-related) to accomplish in a given set of circumstances, in a specific environment and within a particular field of action" (CEFR, 2001: 9). In other words, language use implies actions, that is to say, doing things with the language, not just learning the grammatical rules of that language. The learner should be ready to use a set of strategies and competences to carry out the tasks to be accomplished.

Therefore, language learners seen as social agents are required to develop a range of competences which are necessary for communication to be successful. In fact, "all human competences contribute in one way or another to the

language user's ability to communicate and may be regarded as aspects of communicative competence" (Council of Europe, 2001: 101). They have been summarized in the following chart:

Table 1. Common European Framework of Reference for Languages competences (2001).

GENERAL COMPETENCES (Not specific to language)	COMMUNICATIVE LANGUAGE COMPETENCES (Specific linguistic resources)
1. Declarative knowledge (<i>savoir</i>) - Knowledge of the world - Sociocultural knowledge - Intercultural awareness 2. Skills and know-how (<i>savoir-faire</i>) - Practical skills - Intercultural skills 3. Existential competence (<i>savoir-être</i>) 4. Ability to learn (<i>savoir-apprendre</i>) - Language and communication awareness - General phonetic awareness and skills - Study skills - Heuristic skills	1. Linguistic competences - Lexical competence - Grammatical competence - Semantic competence - Phonological competence - Orthographic competence - Orthoepic competence

NEW TECHNOLOGIES IN THE EFL CLASS

It seems clear that teaching English is more than just explaining grammar and never ending lists of new words to be learnt. Being able to communicate with real people in a foreign language should be the main objective of our students. We can no longer exclusively emphasize the course content to be learnt. Actually, the content alone, as a series of facts, is no longer sufficient in the EFL classroom. We need to make all the skills we teach, which have very often been implicit up to now, stated as learning outcomes. So, new types of methods, strategies and activities should be introduced in the class.

The use of Information and Communication Technologies (ICT) in the EFL classroom could be a good way to give opportunities to our students to use the language with a communicative purpose. On the other hand, using computers in the English class should be much more than just doing some grammar practice or vocabulary revision on a screen. Communicating with each other in a foreign language should be our goal. How could we do that?

THE USE OF BLOGS IN THE EFL CLASS

As described in one of the most popular spaces to create and manage a blog it is “a personal diary. A daily pulpit. A collaborative space. A political soapbox. A breaking-news outlet. A collection of links. Your own private thoughts. Memos to the world.” (http://www.blogger.com/tour_start.g). Added to this, a blog is a really useful tool to be used for educational purposes. It allows you to share materials, links and downloads, to facilitate online discussion and collaboration, to get your students blogging so as to share their work and thoughts, to get feedback and gather information and, in a word, to create a fully functional website (<http://edublogs.org/10-ways-to-use-your-edublog-to-teach/>).

It is free. It is easy to use. It is a simple way to upload content, images, photos and videos on the web. It can be used as a space for users to be connected and share information or keep in touch. Actually, this is the main use we want to propose in this paper: the use of blogs to communicate and interact with the students in the EFL class.

Once it is created, there are many different ways to use a blog in class.

- a) *Teacher's blog* : the teacher sets up the blog and uses it as an additional resource to the traditional class.
- b) *Student's blog* : the learner creates the blog and uses it according to the instructions given in class by the teacher.
- c) *Teacher-student's blog* : the teacher creates the blog but students are invited to participate and collaborate in the writing of it.
- d) *Teacher-teacher's blog* : teachers of the same or different subjects could use the blog to share materials and useful resources for their areas or common interests.
- d) *Institution's blog* : a person creates a blog on behalf of a school, college or university and may establish contact with other similar institutions through the blog.

INTERACTIONAL FEEDBACK THROUGH BLOGS

We consider that the use of blogs in the EFL class could be an effective tool to combine both formal instruction and successful communication between the

teacher and the students. Although they might focus first on the use of the target language at a written level, it can encourage the students to experiment with the language and gain confidence in the use of new structures with the aim of communicating with others. The learners would create their blog as a virtual learning diary and they would be told to write regularly about these five categories:

- 1) *New words and expressions I have learnt.*
- 2) *New structures I have learnt.*
- 3) *Things I can do in English.*
- 4) *Problems and difficulties I have.*
- 5) *Suggestions to the English teacher.*

This could be an example of a student's blog:

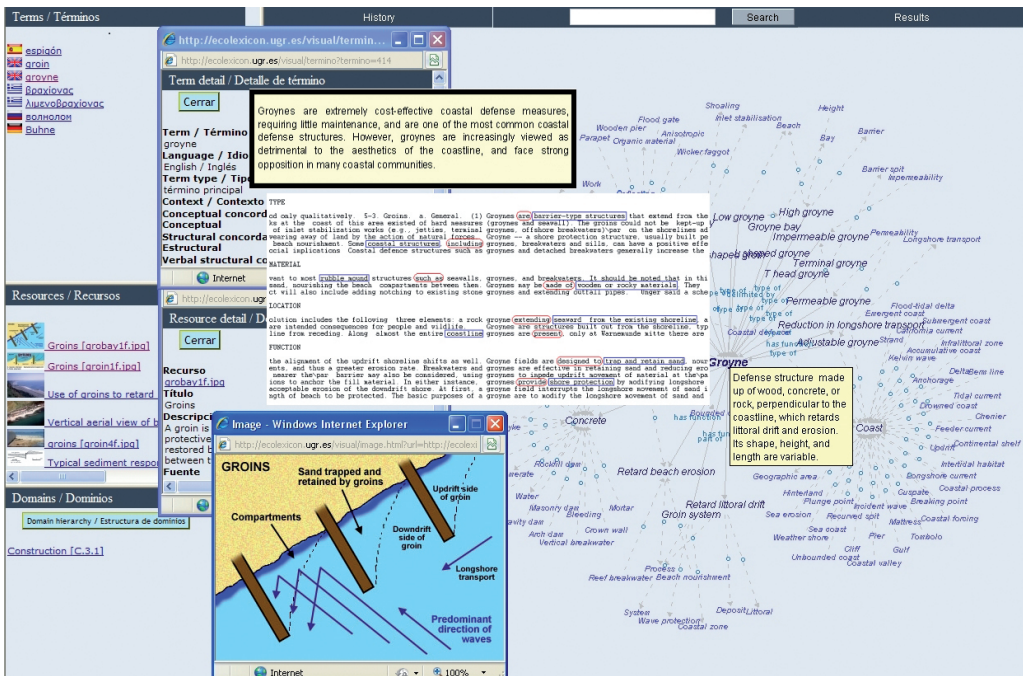


Figure 1. Example of a student's blog.

Learners will use their personal blogs to keep a record of their own learning process. First, they will become aware of their own progress and the main difficulties they have with the language. Then, they will give feedback to the teacher through the blog. The teacher, in turn, will provide feedback to the students individually, providing extra material and resources for those who need it. All the information provided by the students will be taken into account to rearrange lessons and give more emphasis to those aspects which are more difficult for them. Formal instruction and more attention to grammar and language structures could be given at that moment, but that would be done individually considering the personal needs and the evolution of each learner.

What are the benefits of introducing this activity in the English class? On the one hand, keeping a learning diary will allow students to accomplish tasks which are not exclusively language-related. Lessons will become learner-centred and overemphasis on grammar explanations will be avoided. In addition, writing everything down in a learning diary will help them to remember everything better and have a look at their notes when necessary.

CONCLUSION

We strongly believe that using blogs can become a really interesting way to give formal instruction in the EFL class. Students will come across a completely different way to learn grammar, to work in class and to do their homework. This will motivate them and it will foster the personal development of each learner. In addition, this activity will allow **real communication** between the teacher and the students in a real context and with a specific purpose. Last but not least, the students will become aware of their progress through conscious reflection on their own learning process.

On the other hand, the introduction of ICT in the EFL class prepares the students for the demands of the real world. It is widely accepted that we live in a society which produces a huge quantity of information that is being constantly updated. Information is no longer memorised but researched, analysed and integrated or even modified in the learning process. This implies a very important change in the role of the teacher. We are no longer the only source of information and knowledge but has become the guide who monitors the cooperative learning of students.

For this reason, new technologies have become an essential element in the teaching-learning process, not only to access information but also to motivate learners. In view of this new context, the educator's main goal is to make students be aware of the learning-to-learn process and to develop their technological competence through term projects or year projects that can be easily created and shared on the Web.

In fact, today's reality is one in which mass higher education, flexible modes of study and widening participation are becoming the rule rather than the exception. As a result, we are seeing a shift in learning and teaching models across the education sector which is mostly concerned with an awareness that students need to be equipped with the intellectual and interpersonal competences which are necessary for a knowledge-based reality.

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INTERACTIVE MATERIALS, COLLABORATIVE WORK AND WEB 2.0 IN THE CONTEXT OF ESP

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ABSTRACT: This paper explores the possibilities that virtual learning environments (VLEs) such as Moodle, and other free software programs (eXeLearning) provide when teaching English for Specific Purposes (ESP) in a distance learning environment. The theoretical framework behind this work is a combination of constructivist premises, Content-Based Instruction and Task-Based Language Teaching, in order to develop materials that are interactive and take advantage of the latest developments of collaborative educational strategies and Web 2.0 applications. Several examples of these are thus provided: WebQuests (representative of Internet-based collaborative tasks), social bookmarking, blogs and wikis (various Web 2.0 tools that can easily be adapted for the ESP class). All this has been put into practice with the set-up of the online course “Scientific and technical English” and has enabled the author to get a deeper insight into the wide range of Information and Communication Technology resources that help reduce the gap between students and teacher as well as create engaging materials and tasks in a distance learning educational context.

Keywords: Collaborative work, ESP, eXelearning, Moodle, Web 2.0, WebQuests.

INTRODUCTION

Teachers and practitioners of English for Specific Purposes (ESP) have five key roles, according to Dudley-Evans and St. John (1998):

- Teacher
- Course designer and materials developer
- Collaborator
- Researcher
- Evaluator

However, it can be argued that the inclusion of constructivist theories in language teaching and learning has led to a sixth role: facilitator, the person who helps learners to get their own understanding of the content.

Constructivism, and more specifically Social Constructivism, is one of the main underpinning methodologies in the development of interactive materials and collaborative work, not only in ESP, but also in foreign language teaching in general. This theory states that students build or construct their own knowledge through the interpretation of their own learning experience plus their previous knowledge and beliefs.

This paper focuses on the set-up of an online course of scientific and technical English at tertiary level, using two virtual learning environments: Moodle, the open-source software created by Dougiamas in 2002 (www.moodle.org) and aLF, virtual learning environment devised by the Spanish National University for Distance Learning (UNED). The main priority has been to develop engaging materials that matched the learners' needs applying the latest innovations provided by Information and Communication Technology (ICT), with a special attention to Web 2.0 tools.

The course in which all these innovations were implemented was called "Scientific and technical English", part of the modular program "English for specific purposes" organized by UNED for the first time in the academic year 2009-2010. The course was divided into five different modules, which would combine individual and collaborative work:

1. Professional activities
2. Engineering
3. Medicine and Nursing
4. Computer Science (I)
5. Computer Science (II)

The idea was to try out different ICT tools and observe and evaluate student's response: interactive materials created using open-source software (Moodle, eXelearning), WebQuests, social bookmarking, blogs and wikis. Due to the characteristics of the university (Spanish National University for Distance Learning) it was very important to create a virtual community in which computer-mediated communication was to be the keystone.

INTERACTIVE MATERIALS FOR ESP

Virtual Learning Environments

According to Constructivism, learning needs to be situated in real-life contexts which are rich in information. Tasks must be authentic and “are best learnt through cognitive apprenticeship on the part of the learner in a rich environment” (Kirschner, 2001: 3). This theoretical background fits in perfectly well with the use of virtual learning environments (VLE). A VLE is “a software tool which brings together, in an integrated environment, a range of resources that enable learners and staff to interact online, and includes content delivery and tracking. (BECTA, 2004). Its main characteristics are:

- Communication tools such as email, bulletin boards and chat rooms.
- Collaboration tools such as online forums, intranets, electronic diaries and calendars.
- Tools to create online content and courses.
- Online assessment and marking.
- Integration with school management information systems.
- Controlled access to curriculum resources.
- Student access to content and communications beyond the school.

Moodle and aLF, the software tools used in this course, are both VLEs. The reason for choosing both was a practical one, since the author has her own website with Moodle installed (www.elenamartinmonje.com) and the university where she teaches uses aLF. The solution was to insert the author’s website into aLF, providing the content of the course through Moodle and using aLF for marking and tracking students’ progress.

Materials development with eXeLearning

The authoring application selected to provide materials for students is called eXeLearning. It is relatively simple to use and helps publish web content that is visually attractive without the need to master HyperText Markup Language. It has different i-devices that enable the creation of interactive materials and activities:

True/false, multiple choice, etc. as well as the embedding of multimedia resources (pdf documents, images, mp3 files, videos or Internet sites). It can be easily inserted in a VLE, since it uses a SCORM (Sharable Content Object Reference Model) standard that defines how content should be packaged and allows students to view it with the sequencing in which it was designed (Navarro & Climent, 2009). Another advantage is that it is open-source software, which means that it is freely available for teachers and academics (www.exelearning.org). Figure 1 shows an example of materials created with this application.

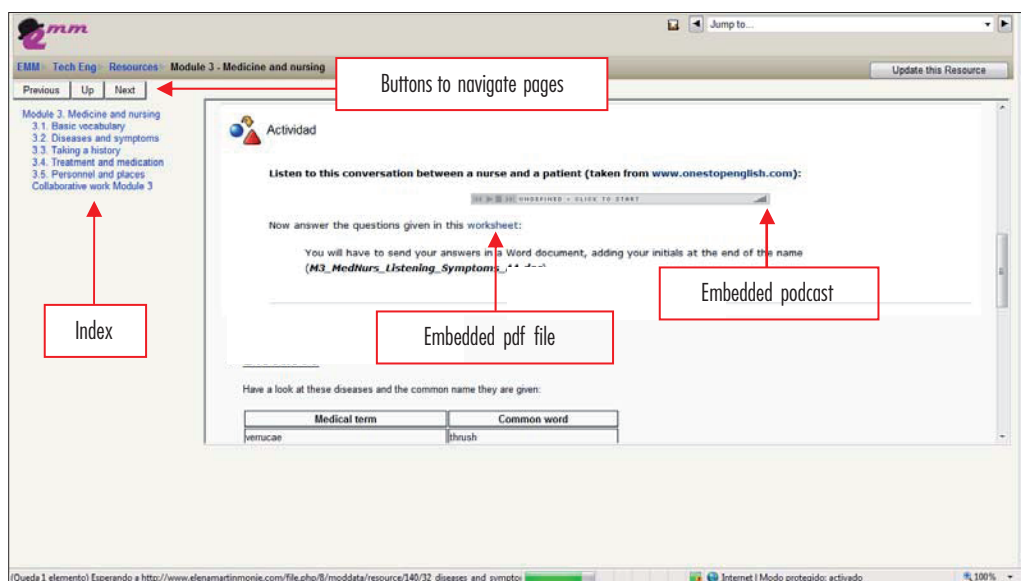


Figure 1. The use of eXeLearning in materials development.

COLLABORATIVE WORK IN AN ESP COURSE

Collaborative work in language learning is linked to Constructivism, but also to Content-Based Instruction (CBI) and Task-Based Language Teaching (TBLT). Both approaches are in accordance with the principles of communicative language teaching and learning (Richards & Rodgers, 2001): people learn a second language more successfully when they use the language as a means of acquiring information and perform activities that involve real communication, in which language is used for carrying out meaningful tasks. The purpose is, therefore, for students to apply their knowledge in real-life situations by exploring authentic

materials, in this case all in the context of ESP. Furthermore, these methodologies enable the acquisition of essential social and communication skills (Kirschner, 2001) so important for the learner of a foreign language.

One of the best educational strategies that combine these methodologies with ICT is the use of WebQuests. Created by Bernie Dodge as an educational strategy to use digital resources in 1995, one of the most complete definitions is the following:

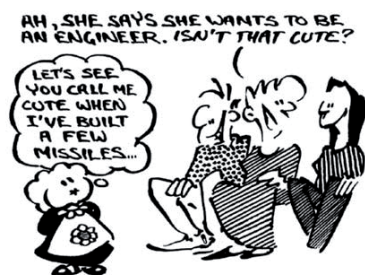
A WebQuest is a constructivist learning activity that uses resources from the Web and presents an authentic task in context which implies transformation of the information, and encourages students' participation in an autonomous and collaborative way, in groups where normally each student plays a different role incorporating the advantages of cooperative learning. (Pérez Torres, 2007: 4).

It was thus natural to design a WebQuest for the course “Scientific and technical English”. The chosen topic was Engineering

<http://elenamartinmonje.com/wq/wqengineering/wqengineering>

and the task was consisted in finding out about career development in that field: description of the job, colleges and universities in English-speaking countries and potential job market (See Figure 2).

What about a career in engineering?



A WebQuest for English for Specific Purposes

Designed by

Elena Martín Monje
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[Introduction](#) | [Task](#) | [Process](#) | [Evaluation](#) | [Conclusion](#) | [Teacher's guide](#) | [Credits](#) |

Figure 2. WebQuest for ESP.

It is not the purpose of this paper to give a full description of WebQuests. Suffice to say that it has five main parts (introduction, task, process, evaluation and conclusion) and that its versatility makes it completely adequate for ESP.

When designing a WebQuest for ESP several factors should be taken into account (adapted from Pérez Torres, 2007):

- Relevant, authentic web resources.
- Integration of the WebQuest into the didactic unit.
- Adequacy of linguistic content to match students' level.
- Vocabulary specific to that occupational context.
- Clear learning objectives, both linguistic and non-linguistic.

All these elements are illustrated graphically in Figure 3.

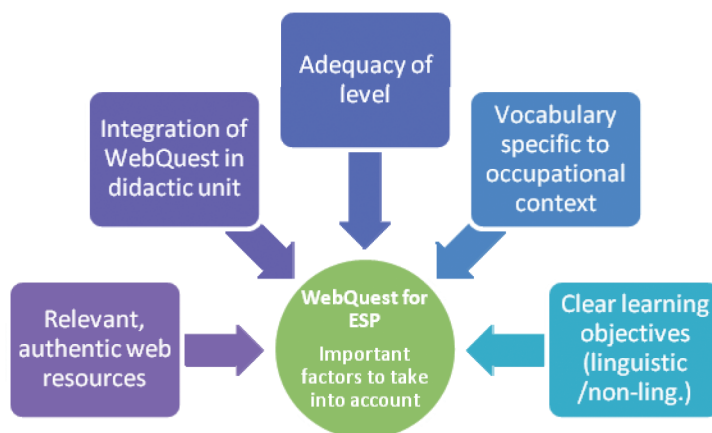


Figure 3. Factors to take into account in a WebQuest for ESP.

Once these elements are taken into account, there are several advantages of using WebQuests in ESP which make it a very powerful teaching tool:

- It exposes students to authentic material and meaningful content.
- It enables students to use the particular jargon characteristic of that specific occupational context.
- It provides motivation.

- It requires collaboration and cooperation among students.
- It supports the development of higher-order thinking skills (analysis, synthesis, evaluation, etc.).
- It promotes an interdisciplinary approach.

WEB 2.0 FOR ESP

It is now widely acknowledged that the Internet is not only a repository of information, but a space in which users create content, share information and interact socially. Tim O'Reilly (2005) coined the term “Web 2.0” and defined its main characteristics:

- The Web is seen as a Platform.
- Users control their own data.
- Its main competencies are:
 - Services, not packaged software.
 - Architecture of participation.
 - Cost-effective scalability.
 - Re-mixable data sources and data transformations.
 - Software above the level of a single device.
 - Harnessing collective intelligence.

Language teaching and, more specifically, ESP cannot ignore these developments, especially if the courses are taught online. In the case of the course “Scientific and technical English”, the author decided to benefit from three of the main Web 2.0 applications: social bookmarking, blogs and wikis.

Social Bookmarking

Social bookmarking websites are a way for Internet users to classify and share their favourite Internet resources. Delicious (www.delicious.com) was the social bookmarking website chosen for the course. All participants had to create an

account, add at least five classmates to their network and share with them a minimum of 10 bookmarks related to the different modules in the course (Professional activities, Engineering, Medicine and Nursing, Computer Science). In order to make the outcomes more homogeneous they were given suggested tags: ESP (English for specific purposes), Prof_Activ (Professional activities), Engineering, Medical (Medicine and Nursing), Computers (Computer Science), Dictionary, Grammar, Online_translator, etc.

The main educational benefit is related to computer mediated communication (CMC), since it allows the possibility of interaction with other users, posting comments, voting and tagging, creating thus a “folksonomy” (a system of classification derived from the collaborative creation and management of tags to annotate and categorize content) and an ESP Internet community.

Blogs

“Weblogs” or “blogs” can be defined as websites that are updated regularly and organized chronologically from the most recent entry backwards (Richardson, 2004; Ward, 2004). The term was coined by Jorn Barger in 1997 to describe the process of “logging the web” as he surfed. The short form was later created by Peter Merholz, who divided the word “weblog” into the phrase “we blog” in his own website. Blogging became immediately successful, since users do not need a wide knowledge of Internet publishing to edit text and include audio, visuals, video, links to other websites, etc.

There is already wide research on the educational benefits of blogs (Ward, 2004). Some of the advantages are:

- The content is authentically communicative.
- It can be peer and teacher reviewed.
- Blogs provide a not-inhibiting context for foreign language interaction.
- Blogs offer a genuine audience.
- They are tools for developing critical analysis skills.
- Blog entries show real evidence of thought processes.
- Second-language skills are improved.

The course “Scientific and technical English” included a blog in which students had to practise some collaborative writing. It was featured in the module for medicine and nursing and the participants had to imagine that they were nurses who were working together in a specific English hospital. They had to develop their creativity and give an account of their experience in that placement (www.anurseabroad.blogspot.com). The minimum requirement to complete the task was to write ten entries or comments to their classmates’ posts. It proved to be one of the tasks which students enjoyed most throughout the course (See Figure 4).

The image shows a screenshot of a Blogger blog. The main content area features a post titled "Group 2 presentation" dated "miércoles 31 de marzo de 2010". The post text includes a greeting "Hi everyone!" and a description of the author's experience as a nurse in Barnsley Hospital, mentioning the BCAC (Barnsley Cancer Aftercare Group) and the challenges of working in a non-Spanish environment. The sidebar on the right contains a "Seguidores" (Followers) section with a "Seguir" button and a list of 9 followers. Below that is an "Archivo del blog" (Blog Archive) section showing a list of posts from 2010, including "GROUP 2: TWO DAYS OUT OF WORK.", "GROUP 1 - Course on transcultural communication ba...", "Group One. Panick attack -", "GROUP 2: VOCABULARY PROBLEMS.", "Group 2. Training courses.", "A nice walk round Barnsley", "Being personable", "Group 1 Nursing practise -", "Group 1 - Erasmus", "Group 1 - Nursing Practice", "Group 3 - presentation", "Group 1 - Degree", and "GROUP 2. PRESENTACIÓN."

Figure 4. Blog for collaborative writing in ESP.

Wikis

The term “wiki” comes from Hawaiian “wiki wiki”, which means “quick” and it is used to refer to websites developed by a group of users in a collaborative way, being easily edited by any of the wiki members. The most widely known

is Wikipedia (www.wikipedia.org) but there are other sites which are highly popular among educators, such as Wikispaces (www.wikispaces.com).

Wikis are “naturally suited for collaborative on-line projects” (Godwin-Jones, 2003: 15). Whereas blogs can be more personal, wikis are mainly based on group work. There are countless applications for the ESP class and in the course “Scientific and technical English” this tool was exploited in two different ways.

One task consisted in creating a collective summary of a book which students had to read. Each participant would choose the chapter that he or she preferred and enter it in the wiki. In case two students chose the same chapter, they would have to agree on the summary (See Figure 5). The main advantage of this kind of task is that the work showcases the point of view of all the participants.

The screenshot shows a Wikispaces wiki page for 'Module 4'. The page is titled 'Information Technology: our summary' and contains a collective summary of the book 'Information Technology'. The summary is organized into three numbered sections: '1- The computer age', '2- In the beginning', and '3- The first computers'. The text describes the development of computers in the 19th century, mentioning Charles Babbage's Difference Engine and Analytical Engine, and Ada Lovelace's work on the Analytical Machine. It also mentions the German Konrad Zuse and his machines Z3 and Z4.

Module 4 Protected página discusión (1) historia notificarme

FACTFILES
Information Technology

Information Technology: our summary

In this module you have to read the book Information Technology. We are going to do some collaborative work, creating our own summary of this book.

1- The computer age

2- In the beginning

3- The first computers

In the XIX century, the people who did very difficult calculations and wrote them in books were called computers. In the 1820s, Charles Babbage invented a machine that did very difficult calculations, the Difference Engine. However, he did not finish building it because he had a better idea. That's when he started to work in a new machine called Analytical Engine. This machine was better than the previous one because it could do difficult calculations but also had a kind of memory. That meant that it was possible to create programs designed for it. For that reason, it is considered as the first real computer, although he never finished this machine either.

It was Ada Lovelace, who worked with Babbage, the one who believed in the possibilities of the Analytical Machine and wrote a program for it. She is considered as the first computer programmer.

Over the next one hundred years, other inventors began to build better calculating machines, such as the German Konrad Zuse whose machines Z3 and Z4 were like modern computers because they also used only two digits to do the calculations.

Figure 5. Wiki with collective summary of compulsory reading.

The second task using wikis consisted in creating a collaborative glossary for Computer science. Each learner had to include at least 10 words from texts used in class plus 5 extra words. The final product had to include the English definition, Spanish translation and the text they had been taken from. An example of the students' work can be seen in Figure 6.

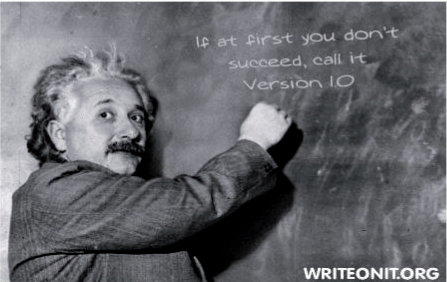
Navegación

- Home
- Module 4
- Module 5

Please, make sure that you keep the words in alphabetical order and include the title of the article you have taken them from, putting it in brackets, next to the definition.

You can find the English definition in this [dictionary](#) and the Spanish translation in [this one](#).

GOOD LUCK!



Vocabulary from the texts

Word	English definition	Spanish translation	Title of the text	Name /Author
application	a program that helps the user accomplish a specific task	aplicación	Happy 50th, hard drive	
automation	a system that uses machines to do work instead of people, or the process of changing to such a system	automatización	What to Tell the Kids	
back up (to)	to make a copy of information on your computer	hacer copia de seguridad	Windows 7	

Figure 6. Collaborative glossary for ESP using a wiki.

CONCLUDING REMARKS

The integration of ICT into ESP has led practitioners to become facilitators rather than just a source of knowledge for students. The set-up of an online ESP course such as “Scientific and technical English” has enabled the author to explore the possibilities of VLEs to create interactive materials. Authoring applications, such as eXeLearning, have helped create interactive, multimedia

materials; whereas collaborative work has been encouraged from different perspectives. A good example of this are WebQuests, which have placed students in real-life ESP situations in which they had to put their social and communication skills into practice. In the same way, Web 2.0 tools such as social bookmarking, blogs and wikis have enhanced this collaborative work. Furthermore, they have motivated students to use the particular jargon characteristic of different ESP areas and supported the development of their higher-order thinking skills, ultimately improving their second-language development, which is the main purpose of any ESP course.

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COLLABORATIVE ESP LEARNING: SOME THOUGHTS DERIVED FROM WIKI METRICS

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ABSTRACT: Wikis, interpersonal generic competences, and English for Specific Purposes communicative competence make a perfect *trio* in the ESP class. However, the same wiki-supported activity has been implemented in two different ESP courses with different results. According to wiki metrics, learning groups have evidenced two different types of social writing methods: a group-based vs. an individualistic learning approach. A competitive pre-university school system may justify these emerging differences.

Keywords: Collaborative learning, ESP, wiki metrics, generic competences.

INTRODUCTION

Let us begin by taking a look at a report on the situation of European business professionals about the consequences of lack of foreign language competence. The EU DGEC-commissioned ELAN project: *Effects on the European Economy of Shortages of Foreign Language Skills in Enterprise* reported in 2006 on an analysis of the use of intercultural language abilities and skills by small and medium enterprises (SME) across Europe and the impact on business performance. The report mentions that 11% of respondents “had lost a contract as a result of lack of language skills” (2006: 5), though this figure may be even greater, as the survey reported only on those situations where SMEs were aware of having (possibly) lost a contract. Successful exporting SMEs have applied good practices of language and strategic intercultural plans (*ibid.*). Moreover, SMEs respondents viewed English “as a key language for gaining access to export markets and frequent reference was made to its use as a *lingua franca*” (*ibid.*). The report ends with institutional recommendations, such as building bridges between businesses and education to promote foreign language competence (*ibid.*: 58-59).

The report of the ELAN project portrays quite realistically what the knowledge of English is among business professionals in Europe, and it reflects

the situation of many professionals in Spain—as can be gathered from ANECA's needs analysis in the White Books of Spanish new university degrees—. Therefore, more than ever, undergraduate students have the need to strengthen their communicative skills in English for Specific Purposes (ESP). In turn, it is the teachers' role to provide students with all kinds of opportunities to practice ESP collaboratively, so as to empower students' communicative competence in ESP.

Complementary to this issue, the Tuning Project for the European Area of Higher Education has proposed examples of generic competences aimed at developing teamwork and interpersonal skills (2004).¹ Implementing these generic competences at the university's degrees may have a positive impact on students, as these competences contribute relevantly to prepare them “well for their future role in society in terms of employability and citizenship” (*ibid.*); and this preparation is important for our biased western school's culture, where, according to Montenegro and Pujol (2010), students must deal with a process of individualization and competence since their early childhood (2010: 11).

In this paper, I take the position that wikis may help students not only engage in ESP learning interactively with their peers, but also wikis foster their process of becoming socially-aware students due to the very nature of a wiki: a wiki is regarded as a networking tool, which permits the design of both generic competence-oriented activities (Mancho et al, 2010: 10–11); and collaborative project-based activities, practicing social writing skills (Franklin *et al.* 2007: 4).

The aim of this study is to explore the implementation of generic competence-oriented and wiki-supported activities in two ESP courses, by looking at the number of contributions on the wiki together with the content of the contributions according to wiki metrics. Thus, we will obtain quantitative data about the different models of interaction.

TEACHING SCENARIO

The ESP courses

The data considered for this paper come directly from two ESP courses taught at Alcalá University: (i) English Applied to Science (Science English,

¹ Retrieved July, 12, 2010 from <http://www.tuning.unideusto.org/tuningeu/index.php?option=content&task=view&id=183&Itemid=210>.

henceforward) and (ii) Reading and Writing of Specialized Texts in English (Reading & Writing ESP, henceforward), which were taught in 2007-08 and in 2008-09, respectively. The former has had 28 students enrolled, while the latter had 52 students. The courses followed a blended learning methodology, so the e-learning part was carried out exclusively on a wiki, without the support of the institutional Virtual Learning Environment. The URL for Science English is <http://ingles-ciencias-uah-08.wikispaces.com>; while the URL for Reading & Writing ESP is <http://ingles-escrito-uah-08.wikispaces.com>.

The Social Learning Activities with Wikis

In both courses the same activity was implemented for a period of five weeks. From the onset, students could visit the Study Guide on the wiki page of the activity. Pedagogically speaking, the activity was designed according to a collaborative learning model and authentic language use. The final outcome consisted in adding new content to Wikipedia entries; this content was agreed on in groups, improved by peer-groups, and validated by the teacher. So, both activities followed the same process: (i) group creation; (ii) selection of one or two Wikipedia entries to add further information; (iii) writing and editing of the text; (iv) peers' communication of possible textual improvements; (v) final validation by instructor; (vi) uploading text on Wikipedia and tracking of possible changes. For ease of reference, Activity I refers to the activity of Science English, and Activity II refers to the activity of Reading & Writing ESP. For Activity I, 7 groups were created, but only 5 are under scrutiny in this paper (from 2 to 3 members) because the other two did not produce any task.² For Activity II, 14 groups were created, but only 5 will be analyzed here, for comparative purposes.³ All in all, groups of Activity I composed 10 texts, while groups of Activity II wrote 5 texts each.

² The actual learning groups are TEAM 1, TEAM 2, TEAM 4, TEAM 5 and TEAM 6. In TEAM 7's History information, several contributions by the instructor (the author of this paper) can be retrieved. These contributions have been aimed at solving accessibility problems by some of the group members.

³ As can be seen in the specific wikipedia, each group has its own specific name. For ease of reference, the names are numbered from 1 to 5.

Technology deployed

The technological model is based on the licensed wiki engine Wikispaces (www.wikispaces.com). Its free access (one of the three access subscriptions) offers an administrator profile (i.e. for the instructor), and a user profile (i.e. for students); a wiki for the class can be designed by making it a protected environment, where anyone can view the wiki, but only invited users are able to edit it. Figure 1 (see below) shows the source for the wiki metrics under discussion.



Figure 1. Tools offered by Wikispaces on all pages (Spanish version).

Of interest is the History tool. With it, different versions of each page within the wiki can be retrieved for comparison. This way it is possible to identify the author of the changes on the page, and the changes this student has made. In all, the History tool allows to retrieve data from students' performance on the wiki. Specifically, for this paper, I am interested in retrieving data related to the author of changes on the specific pages of Activities I and II, and also the actual changes made.

Analytical Framework

The analytical framework is inspired in De Pedro's framework for students' contributions on a wiki (2007: 89). De Pedro's tool is designed to assess all kinds of wiki contributions based on a Computer Based Collaborative Learning model, including those sent to the Discussion forums and dealing with task organization. However, given that this paper focuses on the models of interaction on the wiki, the following analytical tool has been designed.

Table 1 lists possible types of contributions on a wiki, done while students develop an activity which is based on social writing. Five main kinds of contributions are expected: (i) those initiating the task, including adding textual or multimedia content, or changing the default graphic design of the text; (ii) those enhancing the task with textual or any multimedia content; and (iii) those revising the task, ranging from revision of textual information, its graphic design

Table 1. List of contribution types for social writing on a wiki.

DESCRIPTORS	CONTRIBUTION TYPE	DESCRIPTION
TASK BEGINNING		
A1	1st content contribution	First contribution of content: text and/or multimedia
A2	Content and change of graphic design settings	First contribution with content and change of default settings of letter types, size, colors; establishes textual model following genre conventions
TASK ENHANCEMENT		
B1	Writing new textual content	Information enhancement with textual content
B2	Adding new multimedia content (excluding text)	Information enhancement with multimedia content: images, audio & video files, links, etc.
TASK REVISION		
C1	Revision of textual content	Information validity revision regarding text; some textual fragment(s) deleted; some text may be written instead
C2	Revision of multimedia content	Information validity revision, considering multimedia content; some content deleted; other content may be inserted instead
C3	Revision of graphic design	Task revision for graphic design, changing the default one or the one previously selected in A2
C4	Revision of language	Text is revised for language errors (mechanics, spelling, lexis, morpho-syntax, discourse cohesion markers, text structure...)
TOOL FAMILIARIZATION		
D1	Unrelated contribution to task	Contribution with content unrelated to task and with no graphic design changes. Aims at knowing how tool works
TASK ORGANIZATION		
E1	Task organization	Contribution with information about how to organize the task

to various linguistic errors. Finally, the fourth section takes in contributions aimed at knowing how the visual editor of the wiki works, with content unrelated to the actual task; and the fifth section comprises contributions about how to organize the task.

RESULTS

The analytical framework provides evidence about the most common type of wiki contributions (see Figure 2, which is based on Tables 2 & 3 in the Appendix). On the one hand, Activity I shows great variability of percentages: 63.4% corresponds to linguistic edition (Descriptor C4). Next, a set of four descriptors with similar percentages ranging from 9.9% to 6.9%: A1, with the expected task beginning contribution; revision of graphic design (C3); addition of further content (B1); and revision of textual content (C1). Finally, the descriptors at the lowest rank of the percentage scale are (3%-0%): revising multimedia content (C2); adding further multimedia content (B2); deciding on graphic design of task from the onset (A1); getting to know the tool (D1) and organizing the task (E1).

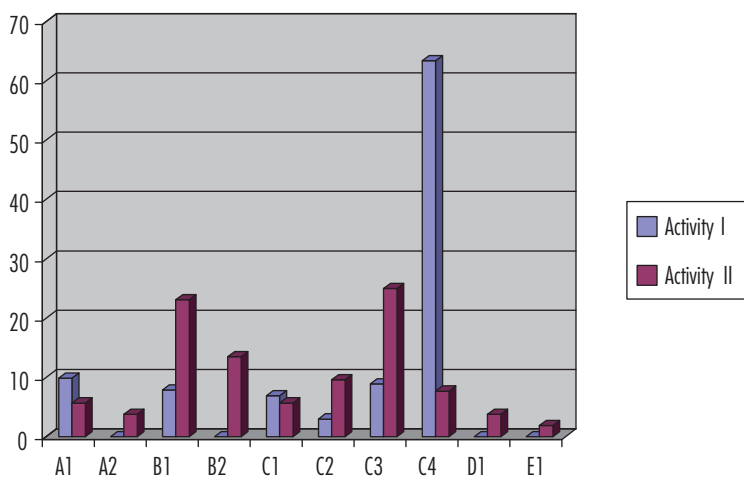


Figure 2. Percentages of contribution types in Activities I and II.

In turn, Activity II is more homogeneous regarding the number of contribution types. Its values can be divided into four groups: firstly, the highest percentage of the most common type of contributions is shared among two

descriptors: revision of graphic design (C3) and addition of further content (B1); their percentages are 25% and 23.1%, respectively. Secondly, what follows is both descriptors dealing with the addition or revision of multimedia content (B2 and C2: 13.5%–9.6%, respectively). Thirdly, a set of three descriptors dealing with linguistic improvement (C4), starting the task (A1) and content revision (C1) comes next (7.7%–5.7%). Lastly, another set of three descriptors are grouped with the lowest percentage of contributions: content and graphic design change at the onset (A2), unrelated contribution to task, (D1) and task organization (E1) (3.8%–1.9%).

DISCUSSION

Let us not forget that Activity I and Activity II were embedded into two ESP courses, and that the final textual outcome was assessed according to linguistic accuracy, as stated on the corresponding Study Guides.⁴ So, it is assumed that students involved themselves in doing the activity, and did their best individually to produce the group's best outcome in qualitative terms. Thus, it is worth commenting on the wiki contributions taking the descriptor C4 (revision of language) as point of reference.

Activity I shows more instances of linguistic revision than Activity II. This responds to the fact that those students had participated more actively in the activity showing a positive and group-interest learning attitude. This claim is corroborated by the 6.9% and 8.9% of wiki contributions dealing respectively with improvement of content (C1) and revisions of format (C3). On the contrary, Activity II shows far less instances of linguistic revision—occupying the 5th position in the ranking with 7.7% of the contributions—due to the fact that students participated less on the wiki and showed a less cooperative learning approach. Moreover, the fact that there are less revisions of content than in Activity I, as a comparison of the percentages (5.75% vs. 6.9%) shows, can corroborate this claim. Additionally, the students feel safer dealing with adding new content (B1) or with the revision of format settings (C3) than with linguistic issues, as the highest percentage of graphic design contributions (25%) evidences.

Moreover, the higher percentage of revisions in Activity II devoted to formatting revision (C3), and the fact that almost half of the groups started the task

⁴ E.g.: http://ingles-escrito-uah-08.wikispaces.com/unit_4_wikipedia (at the bottom of the page)

considering formatting issues (A2) also indicate that these students were format-interested, instead of linguistic-interested. This claim is reversed for students of Activity I, considering the high number of contributions dealing with linguistic revision (C4) and the fact that no group started the task considering formatting issues.

The wiki contributions in these two activities show conclusively two different patterns of social writing: a group-based vs. an individualist model. In fact, the process of social writing of Activity I follows a group-based model, because task revision descriptors amount to more than 80% of all the contributions; the outstanding 63.4% of linguistic revision contributions can be interpreted as the students' perceiving themselves as being empowered to make linguistic improvements. A percentage difference of 1 point between the descriptors content addition (B1 & B2) *versus* content revision (C1 & C2) provides further evidence of the groups' attitude to provide content, albeit with revisions of it.

By contrast, it is claimed that the process of social writing of Activity II follows a more individualistic approach. Reasons for this are founded on the students' interest in adding new content (descriptors B1 & B2: 36.6% in total), rather than revising it (C1 & C2; 15.3% in total); the low number of Task Revision descriptors, except for the formatting one (C3) also provides evidence for this individualistic approach. Moreover, the lack of linguistic revision contributions is symptomatic of the students feeling less linguistically empowered to make corrections in the wiki's *public arena*.

CONCLUSION

Learning ESP has become a *must* in our globalized economy; university graduates from all backgrounds will have the opportunity with the newly designed Bologna-degrees to practice English collaboratively. Wikis stand out as techno-pedagogical tools which help students foster ESP communicative competence, as wikis allow the design of learning ESP activities taking interpersonal generic competences as point of reference.

Two different social writing models have emerged in the same kind of wiki-supported activity, which has been implemented in two groups of ESP students. Students of Science English responded with a group-based learning approach, as most of their contributions are revision-related; unlike students of Reading and Writing English, whose learning model resulted in being more independent and

individual, as the general lack of revision contributions manifest. In all, this difference is expected to emerge because of two possible reasons: (i) the heterogeneous levels of communicative competence in ESP; and (ii) our western school's culture praises individualist and competitive attitudes, as Montenegro and Pujol suggest (2010: 11). An institutional selection of the best tools to implement effectively interpersonal generic competences, instead of promoting technological bottom-up *lone ranger* proposal is most desirable. I believe that this win-win bet is highly beneficial not only for our academia, as technophobic instructors could easily implement new generic competence-oriented techno-pedagogical tools in their classes, but also for our undergraduates as it can undoubtedly improve their ESP communicative competence, enhance their citizenship and employability.

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APPENDIX

Table 2. Number of contributions of Activity I according to types.

ACTIVITY I											
Descriptors	A1	A2	B1	B2	C1	C2	C3	C4	D1	E1	Total
TEAM 1	2	-	-	-	4	1	-	11	-	-	18
TEAM 2	2	-	3	-	-	-	-	28	-	-	33
TEAM 4	2	-	5	-	3	-	4	18	-	-	32
TEAM 5	2	-	-	-	-	-	2	2	-	-	6
TEAM 6	2	-	-	-	-	2	3	5	-	-	12
TOTAL	10	0	8	0	7	3	9	64	0	0	101
%	9.9	0	7.9	0	6.9	3	8.9	63.4	0	0	

Table 3. Number of contributions of Activity II according to types.

ACTIVITY II											
Descriptors	A1	A2	B1	B2	C1	C2	C3	C4	D1	E1	Total
TEAM 1	-	1	1	-	1	-	2	1	-	-	6
TEAM 2	1	-	1	4	-	2	2	2	1	1	14
TEAM 3	1	-	4	1	-	2	3	1	-	-	12
TEAM 4		1	3	2	-	1	6	-	-	-	13
TEAM 5	1	-	3	-	2		-	-	1	-	7
TOTAL	3	2	12	7	3	5	13	4	2	1	52
%	5.7	3.8	23.1	13.5	5.7	9.6	25	7.7	3.8	1.9	

ENGLISH FOR ART AND HUMANITIES: AIMING AT PROFESSIONAL AND PERSONAL GROWTH IN AN ON-LINE COURSE

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ABSTRACT: Within the context of an on-line postgraduate and master course on English for Specific Purposes, the authors analyse their experience in planning and designing a subject, “English for Art and Humanities”, according to a student-centred and holistic approach. The difficulties encountered, the adjustments made and the students’ results and feedback triggered a process of reflection on the differences between the planned and the actual use of Information and Communication Technology tools, and on how to improve learner support and management in order to create a cohesive learning community. The authors have achieved new insights into their own teaching practice and into the still largely unresolved question of ICT pedagogy.

Keywords: ESP, ICT, student-centred, holism, creativity, interdisciplinary, intercultural, learning community.

COURSE PLANNING AND DESIGN

During the course 2009-2010 the authors designed and tutored a subject, «English for Art and Humanities», for a new on-line postgraduate and master course on «English for Specific Purposes» at the Universidad Nacional de Educación a Distancia. The main aim was to offer university students and professionals interested in any field related to art and humanities the specific knowledge of English, as well as the most useful resources and strategies needed in their specialized contexts. An important factor to bear in mind was that practice was to be provided on the four language skills (reading, listening, writing and speaking).

ICT (Information and Communication Technology) integration development and activity is taking place at all levels in the educational context. However, the

question of *ICT* pedagogy remains largely unaddressed (Baskin and Williams, 2006). Technological developments in the classroom must be matched by the necessary pedagogical compatibility and social awareness, so that their use does not end up being reactive rather than proactive, reproductive rather than creative (Cuban, 2001). Bearing this in mind, the authors made the apparently paradoxical decision of planning and designing a course based on highly specialized language according to a *holistic*¹ approach. As regards education, *holism* has shown the convenience of teaching students to be critical, confident and independent in the context of *interdisciplinary* curricula which tackle global and community perspectives. At a general level, what distinguishes *holistic* education from other forms of education are its goals, its attention to experimental learning, and the significance it places on relationships and human values (Forbes and Martin, 2004). In this respect, a subject like “Art and Humanities” provides ample room for students to work cooperatively, develop a critical and creative attitude and acquire *intercultural* competence². The authors thought, therefore, that, because of the specific nature of the subject which was to be taught, teaching a very specialized linguistic domain was not incompatible with a *holistic* approach; on the contrary, as the course developed they learned it was actually enhanced by it.

With these objectives in mind, the authors explored the subject-specific material available in the book market and on the Internet. Eventually, however, as they did not find material, which adequately matched their purposes – for example, *English for the Humanities* by Kristin L. Johannensen (2006), was deemed too market-oriented – they decided to produce their own, based on their long teaching experience. It was at this stage that they thought of publishing a coursebook that would be complementary of the material available to the students online. It included keys for self-assessment, specialized glossaries, grammar practice, detailed information on numerous general and specific resources on Internet and a CD to help students develop their listening skills.

¹ *Holism*, a term which derives from the Greek *holo* (= whole), was coined by South African Jan Smuts in his 1926 book *Holism and Evolution*. *Holism* focuses on the interconnected, *interdependent* nature of reality and claims that the elements or parts of reality form an interconnected, interdependent whole in such a way that the element or part, if isolated from the whole, would be radically different from what it is and vice versa (Settanni, 1990: 8). Although the term *holism* is a modern invention, philosophers such as Heraclitus and Aristotle already viewed the world in *holistic* terms. During the 20th century, *holism* had an enormous influence in fields such as physics and the social sciences.

² For further information on communicative competence and specifically on intercultural communication, see for example W. Gudykunst (1993). *Being Perceived as a Competent Communicator*. In Gudykunst, W. and Kim, Y., (eds.), *Readings in Communicating with Strangers*. New York: MacGraw-Hill, 382-392; R. Wiseman and J. Koester, J, eds, (1993). *Intercultural Communication Competence*. Newbury Park, CA: Sage; M. Byram, , A. Nichols, and D. Stevens. 2001. *Developing Intercultural Competence in Practice*. Clevedon: Multilingual Matters LTD.

As the subject “English for Art and Humanities” should account for 5 credits, that is, 125 hours of work, the next step was to adapt and upload certain contents of the coursebook on UNED’s aLF online platform. The course was designed bearing in mind that computer-based technology should be used so that students are given a certain amount of autonomy and choice about how to engage with what is offered (Sutherland et al., 2009). The material was divided into 5 units – Art, History, Literature, Film / Media and Language – and scaffolded so that students would work mainly individually in the first modules and then move on to increasing collaborative work. A great effort was made to design interactive and motivating activities that would go beyond teaching purely linguistic aspects and systems. Humanistically-oriented cultural content, like the plight of African-Americans in the history of US, the everyday life of the poor during the Great Depression, famous activists, war poems, or current news, was provided to give students scope to reflect on and take part in discussions. In this respect, the authors think that there is a clear relationship between culture and language teaching and agree with other authors, like Claire Kramsch, who regards the context and the cultural component as something essential in the language teaching process (Kramsch, 1994). On the other hand, as the subject was part of an *ESP* course, an effort was equally made to provide students with professionally relevant material like analysing and interpreting art / literary work or a political speech, writing a film review or a news report, explaining how to preserve an artistic collection, advertising art products, interviewing an author, writing a CV / bio / presentation letter, giving an oral presentation, etc.

ENROLMENT, COURSE PROGRESSION AND ADJUSTMENTS

The on-line postgraduate and master course being newly offered, there was no previous reliable information regarding the number of students who would enrol or their educational background. 13 students actually registered. The degrees they held were quite varied:

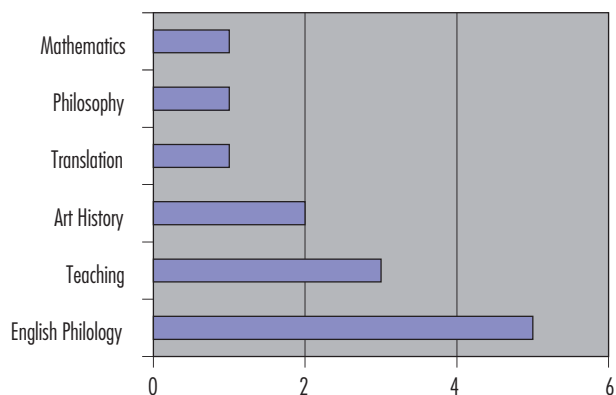


Figure 1. Students' academic background, course 2009-2010.

At this point, it seems appropriate to refer to the students' results at the end of the course to try to establish if their educational background had an influence in the results they obtained. As regards their final marks, 7 out of the 13 students were able to pass the subject in June, whereas 3 had to postpone some of their work until September and 3 did not even contact their teachers.

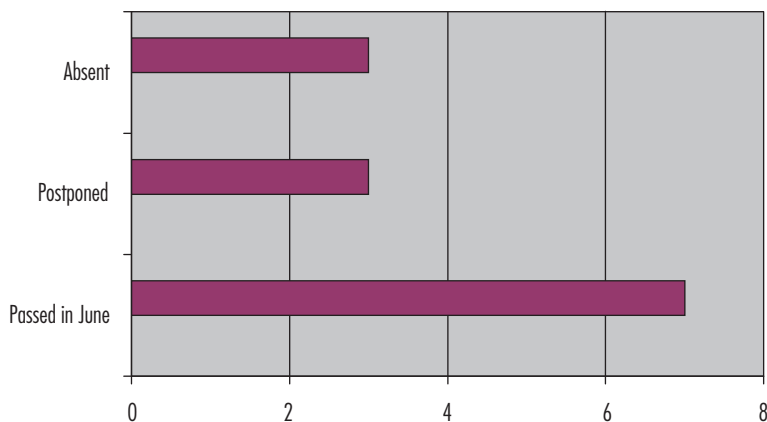


Figure 2. Results obtained by students in June 2010.

It must be stated that the students who postponed their work did so because of important personal and health problems. Among the 3 students who did not even contact the teachers 1 had a degree in English Philology, 1 in Art History, and 1 in Mathematics. It must be added that the academic background of those students who obtained an A in June was the following: 3 had a degree in English Philology and 1 in Art History, which seems to indicate that the students with

the longest and most specific training regarding the subject were able to achieve better results. On the other hand, it is also significant that, although when the students enrolled they were only required to have an A2+ level of English (according to the levels described in the European Framework of languages), the students who obtained an A had a considerably higher level, which the authors estimated at B2+ or even C1.

As the course progressed, it became clear that some of the objectives the teachers aimed at could not be achieved. To start with, both the students and the teachers had to become familiar with at least some of the necessary technological skills required by ALF, a platform, which at the time was still being tested and developed. Although the teachers had attended previous training sessions, their knowledge of the platform was quite limited and they did not manage to put some of the tasks into practice. Unfortunately, at this stage they could not count on efficient computer advisors, nor were they given enough information on much needed “feasible examples of effective technology integration” (Chen, 2008: 74).

Another difficulty was the fact that the students unexpectedly underused the “forum” facility in ALF and clearly preferred contacting their teachers via e-mail. Besides, because the first units had been designed mainly for individual work, the students had not been able to contact each other and seemed to avoid doing so. In fact, only 3 students took part in the forum throughout the course, mainly to ask for help to upload or find information, not to develop online discussion.

A particularly difficult challenge was how to develop oral and communicative skills that would include interaction, since they play a key part to achieve communicative competence³. On the one hand, this was an issue that implied considerable technical challenges. On the other hand, the students were heterogeneous not only regarding their academic training but their level of English, which ranged from hardly an A2+ level to C1. As a final task in the course, the students had to give an oral presentation on a topic they were particularly interested in. Previously, they were trained, for example, on the importance of body language or the typical structuring and linking expressions. They were then asked to video-record themselves by means of a web-cam so that the other students could offer their feedback. Unfortunately, some students were

³ For further information on the importance of developing interaction see D. Larsen- Freeman and M.H. Long (1991). *An Introduction to Second Language A Language Acquisition Research*. London: Longman.

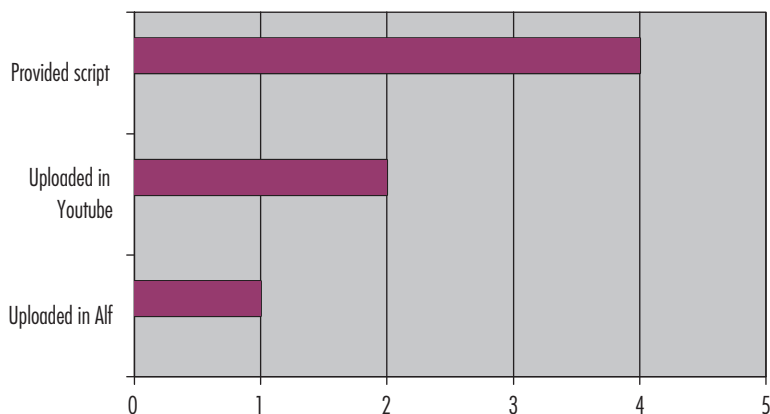


Figure 3. Number of students who managed / failed to upload their oral presentation in UNED's platform ALF (June 2010).

not able to record themselves. Only 1 out of the 7 students who passed the subject in June was able to upload his video in ALF, although 3 students managed to do so in "Youtube". The rest excused themselves and uploaded a script of their oral presentation.

Significantly, the students who managed to record and upload their oral presentations, which ranged from "Recommending Ireland at a linguistic and cultural level" to "Sir Gawain and the Green Knight" and "Impressionist Art", found it a very useful and rewarding experience. This makes it more regrettable that the other students were unable to upload their work because of technical difficulties or the lack of computer expertise. On the other hand, the students who uploaded their oral presentations could not receive feedback from their classmates because the course had almost finished.

ACHIEVEMENTS AND FURTHER NECESSARY DEVELOPMENTS

The Teachers' Analysis

The teachers strongly feel that, in spite of the difficulties that designing and planning a new subject in an on-line environment entailed, the experience was a positive one. As regards the use of *ICT* tools provided by UNED's platform aLF, the authors consider that the main advantages were the following ones:

- aLF is an ideal environment to tutor students according to a learner independence methodology. Students were informed of their progress and results at every stage and could be helped, encouraged and advised conveniently. Established deadlines and reminders helped them to organise their work.
- In general, the tutoring function was enhanced. The students' doubts were solved and advice was offered at a linguistic level, but also regarding their careers, future travelling destinations, specific websites to practice language skills or acquire vocabulary and, in one case in which the student was unable to find speeches by Barack Obama, research tools.
- It was easy for the teachers to analyse the students' engagement, productivity and results and to edit and adapt the material if necessary. Statistical data could be established quickly and aLF helped the teachers to manage their workload.
- After some practice, the teachers were able to scaffold and upload material quickly and effectively and develop a broader repertoire of practitioner skills. The information and resources were displayed in a clear and attractive way and could be easily accessed by the students, who, within limits, could choose their own pathways and work at their own pace. The students' motivation, engagement and self-confidence were thus enhanced.
- The support of information technology facilitated innovative approaches to teaching intercultural and social issues in the language classroom¹.

As regards the main disadvantages, they were felt to be the following ones:

- The process of becoming familiar with the platform, both for teachers and students, took longer than expected. The deadlines to upload work had to be adjusted and certain tasks and activities, like writing a news report and presenting it to classmates, had to be eliminated or simplified.
- The tutorial function, although enhanced by means of aLF, was carried out in a different way from expected. The students were offered a forum and a specific timetable in which they could contact the teachers on the phone. However, they largely overlooked these two possibilities and clearly preferred to contact the teachers via e-mail. This meant that they were provided an enormous amount of individual attention that other students with similar questions or problems could not benefit from. Some

students used the forum on a few occasions to ask for help, but not for online discussion.

Regarding possible future developments, the authors feel that, although they were able to establish a fairly close relationship with most students, unfortunately they did not manage to create a *learning community* with well-defined roles and responsibilities. Among the reasons for this, the delay in starting the course because of technical difficulties and lack of expertise, the heterogeneity and in some cases even inadequacy of the students' level of English, and the fact that the "forum" facility was largely underused are to be emphasized.

The authors feel that classroom management should be improved so that it results in more intense group interaction. This could be achieved, for example, by introducing and organizing more problem-solving and decision-making group activities and by offering students more opportunities to give each other feedback. Another future development is to explore the possibility of establishing a "community of practice" (CoP), an effective tool for encouraging communication and community building as well as a means of increasing learner autonomy.

Students' perceptions, assessment and feedback

Throughout the course, some of the students provided the teachers with ample and varied feedback, mainly by means of their frequent e-mail exchange, but also in the final review they were asked to write. The 7 students who passed the subject in June and even the 3 students who were forced to postpone their work until September showed their general satisfaction. The features they considered particularly positive were the following ones:

- The amount of individual attention, encouragement and advice they felt they had received.
- The material which had been specifically designed for the course, which they described as attractive, very varied and "unconventional" in the sense that it dealt with artists, activists and politicians, social issues like segregation, etc. that the students were not familiar with.
- The fact that many of the tasks involved expressing opinions and developing creativity.

- The considerable level of difficulty the tasks involved, both regarding language and contents. According to one student, this required “a great deal of effort, concentration and sometimes inventiveness from us. This made it all more difficult but also much more rewarding at the end”. This student also stated: “we learned a lot about the subject matter and about the specific language and terminology related to it”. Another student valued the fact that the activities were “comprehensive” and “involved a lot of Internet search, and very much thinking and putting my opinion and comments into written words.”
- Students emphasized the fact that the course had helped them to develop their writing skills. As regards the last task, the oral presentation, which was described by one student as “very challenging and very difficult indeed”, it was particularly valued by the students in general in spite of the technical difficulties it involved. One student who was able to upload her presentation in “YouTube” claimed that it “helped me overcome (a bit) my fear of speaking to the camera”.

In their feedback, the students suggested some activities or resources that the course might include in the future:

- A group activity like a research project or a “WebQuest”, which will provide the opportunity to “meet” other students and share “the stress” with them.
- A “wiki” or a discussion thread in voxpop.com, so that students can, for example, record audio files and embed them.
- A list of online resources which are more specific of Art and Humanities (glossaries, blogs, etc.) and not so much about language skills in general.

CONCLUSION

Because ICT tools appeal to all the senses, facilitate the inclusion of a variety of media and allow to edit and adapt lesson material quickly and easily, teachers are able to personalize learning and reach their students in a flexible and effective way. Information has been provided on how the authors designed an ESP on-line course and the adjustments they were forced to introduce as it developed. The analysis of the students’ input and performance, the students’ feedback and

the teachers' assessment and self-evaluation seems to indicate that the course facilitated and enhanced the students' learning process, although mainly at an individual level. Certain improvements and developments can be introduced by aiming at creating a more cohesive learning community. In spite of the shortcomings, especially due to the authors' insufficient ICT expertise, they feel they managed to incorporate technology into their instruction in an innovative way as the holistic approach they chose proved to be learning enhancing in a highly specific linguistic domain. The course showed that learning is a social and shared experience, which is part of an ongoing negotiation process.

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REVISING GEOMETRICAL SHAPES AND THE ENGLISH VERB
SYSTEM WITH CIVIL/BUILDING ENGINEERING STUDENTS:
TOWARDS A COMPLEMENTARY TEACHING RESOURCE FOR LSPs

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ABSTRACT: The aim of this paper is to display how two significant matters to ESP for Engineering (the expression of geometrical shapes and the comprehension of the verb system) can allow a combined teaching approach. To associate these two matters, quite obviously very different in nature, this proposal applies the metaphor **LANGUAGES ARE (LIKE) VISUALS**, a verbo-graphic analogy developed and partially employed to describe the English verb by means of a system of fitting shapes (Palacios, 2009). Given the relevance of verbs as a linguistic reference whose contribution is essential to the understanding and command of language, and since the proposal can graphically illustrate their morphological performance rather well (for instance, the different degree of inflection and periphrasis verb groups have in order to produce grammatical forms and meanings; the subject-verb agreement; the distinct telescoping arrangement of verb structure; or the distinctive performance of modals), the main purpose here is to let this complementary approach to grammar be better known. Besides, given the new insight into language study this scheme involves, some possible steps are finally considered to check its pedagogical value and produce a useful auxiliary software tool for language revision.

Keywords: Geometrical Shapes, English Verb System, Grammar Teaching.

A TWO-GOAL TEACHING APPROACH FOR ESP

Engineering comprises many subjects the study of which can hardly be understood without a thorough knowledge of geometrical shapes. Hence it is useful to include a good account of its vocabulary in any ESP engineering course: in fact, together with other specific terminology, it may well provide an important part of the course lexical syllabus. Similarly, these ESP courses also require some grammar revision as technical students often show a considerable weakness in grammar use. A clear example is the basic but common grammatical mistakes concerning both the morphology and functions of tenses within the

English verb system, which therefore should neither be neglected.

This paper aims to show a two-goal approach to teach both matters in ESP, particularly for engineering students. To associate the expression of geometrical shapes and the comprehension of the English verb system, this proposal applies the metaphor LANGUAGES ARE (LIKE) VISUALS (LAV), a verbo-graphic analogy developed and partially employed to illustrate the English verb by means of a system of fitting shapes (Palacios, 2009). Quite obviously, geometry and the English verb are different in nature: whereas the former belongs to the ESP specific lexical content, the latter is clearly grammatical. As we shall see, however, the knowledge and practice of some geometrical shapes can be employed as a supporting means to learn the verb system. Thus the proposal can be considered double-targeted, a two-aim approach to address two different language needs.

In a first step students are introduced to the English vocabulary of geometrical shapes, that technical core background these students tend to know well in their mother tongue. Needless to say, geometry has been closely related to architecture and construction since the beginning of civilization, from temporary shelters to permanent locations and lasting structures. Through geometric shapes, any sort of building –whether house, palace, church, etc. – shows particular ratios and proportions between each of its features and the others. Our surrounding architecture provides a vast sample list of shapes of every type. Accordingly, geometry deserves due attention in any engineering LSP course, particularly in those for Civil/Building Engineering and Architecture. The target vocabulary should include a thorough revision of both pure geometric shapes or figures and those specifically used in construction. Lexis can be sorted by dimension (point, spot, etc.; line, segment, ray, angle, vertex, edge, etc.; plane, face, triangle, square, diamond, rectangle, pentagon, hexagon, octagon, trapezium, circle, oval, ellipse, etc.; volume, cylinder, cube, rectangular prism, sphere, pyramid, cone, etc.). It can relate to form or position (parallel/perpendicular lines, obtuse/right/acute angle, equilateral/isosceles triangle, similar/congruent/symmetrical figures, etc.). It can refer to specific shapes (wedge, sheet, slab, arrow, block, column, etc.). Here, because of extension reasons, it cannot be but presented succinctly. Besides, other vocabulary should be revised too: verbs and prepositions of position and direction; derivational conversions among nouns, adjectives, verbs and adverbs; expressions of shape (such verbs as to be/look like, such adjectives as –shaped, –like, etc.). At any rate, it is suggested how this section can prepare the ground for the next and more relevant part of this paper.

THE ENGLISH VERB THROUGH WISE (WORDS-IN-SHAPES EXCHANGER)

Here we summarise the visual analysis of the English verb group (henceforth VG) provided by Palacios (2009), where verb structure is approached through a transfer of functional and morphological performance onto fitting shapes that graphically resemble verb grammar rules at work. By comparing such language mechanisms to a visual system, an analogy is made based on the possible parallels between verb structure and the graphic system purposely created with WORDS-IN-SHAPES EXCHANGE (WISE). This mapping of LAV is exemplified representing verbs as they combine to produce extended VGs.

Both English verbs and the WISE scheme show a typical paradigm of information flow where, like in a relay race, some code is passed forwards. A closer example is dominoes, a game based in a numerical sequence where the backward number of a token matches the forward number of the previous one (Figure 1a). Verbal systems are visibly more complex and so is certainly this scheme where, instead of a numerical correspondence, the link between successive words is shown through fitting figures. First, all shapes representing verb words always have, like in dominoes with numbers, two sides: one back that receives and carries the code of the preceding element, and one front that in turn imposes its own mark onto the following shape (Figure 1b). Yet this transfer goes necessarily forwards so that, unlike in dominoes, these faces are not interchangeable: backs are always backs and fronts are always fronts (notice arrows in Figure 1). Second, in order to graphically reproduce the referred information transfer, WISE reverses the places where the transmitting and receptive codes of each verbal unit linguistically occur within the word.

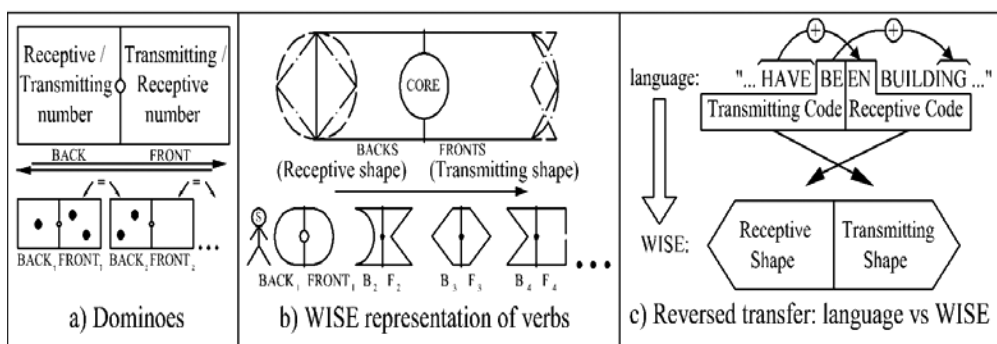


Figure 1. Information transfer: dominoes, WISE and language.

If we take the instance utterance ‘have been building’ (Figure 1c), the transmitting onward code of ‘been’ is its first part, the base ‘be’, which is nonetheless represented in WISE as the second; and in the same way, its receptive code that adapts to ‘have’ is in its last part, in ‘-en’, again being represented inversely, i.e. in first, back position.

Rather than forms themselves, WISE represents their functional status, a crucial feature which resembles how though English has several verb types, some of its verbs may belong to more than one type, depending on their function. The fact that the three non-finite simple forms are the only possible forms (save TO-infinitives) that take non-initial position in any extended VG is considered as a start to assign each verb type its specific shape. For this reason they are regarded as the three fixed receptive backward links and each is allotted a differentiated back. Given that their occurrence is determined by the preceding verb, i.e. by the types of auxiliary, this visual analysis is established so that the auxiliary fronts match one of the three mentioned backs.

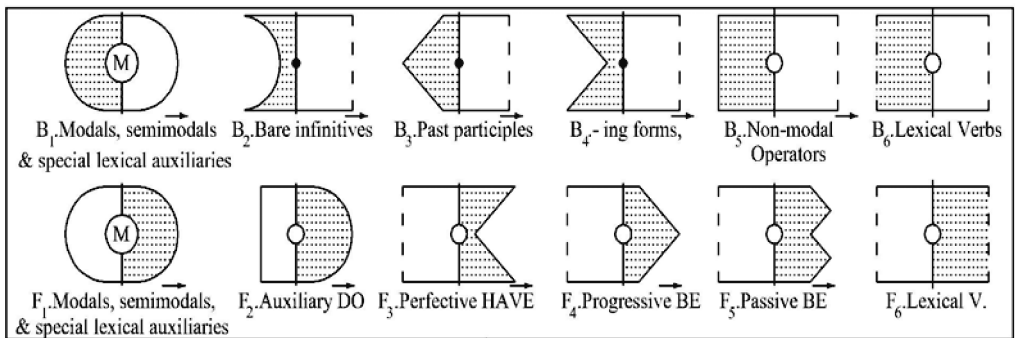


Figure 2. Six possible backs and six possible fronts.

First, being invariable in English, modals are always portrayed as flattened fixed round shapes, with both front and back remaining semicircular (Figure 2, B1 & F1). Hence, bare infinitives always have forward semicircular backs (Figure 2, B2), just reproducing a somewhat inverse outline from modal fronts. Second, the auxiliary DO –marker of present and past simple tenses when in negative or interrogative form, as well as of past and present emphasis– must have a forward semicircular front too (Figure 2, F2), as it is also followed by bare infinitives. Third, the perfective HAVE is given a backward angled front (Figure 2, F3), somehow resembling an arrow pointing to the past, the way the perfect aspect

covers an indefinite period up to a particular time reference. Thus past participles always have backward angled backs (Figure 2, B3.). Finally BE is provided with two different fronts, depending on whether it participates in the VGs as progressive or passive auxiliary. As a progressive marker, BE is represented with an angled front pointing forwards (Figure 2, F4), thus suggesting its dynamic, progressive sense. Accordingly, –ing participles always have forward angled backs (fig 2, B4). As a passive auxiliary, BE is followed by past participles and so has to match their back while differing from the perfective HAVE: as a consequence, it is distinguished with a front shaped like a zigzag line pointing backwards in its middle (Figure 2, F5).

The assignments established up till now are fixed unchanging contours and, as such, WISE assigns them continuous lines. That is also the case of non-modal operators, which being the first element of the VG, show fixed continuous vertical backs (Figure 2, B5). All the still-uncommented drawing sides in Figure 2, including the lexical verbs (Figure 2, B6 & F6), are variable contours and accordingly depicted as broken lines. In any case, this WISE reporting already gives enough graphic information to visualize the four basic verb combinations (Figure 3) as they are generally recognized (cf. Quirk et al., 1985; Downing & Locke, 2006).

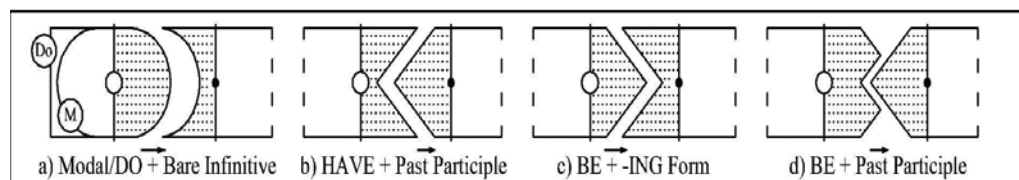


Figure 3. The four basic verb combinations.

The graphic functioning caused by the morphological forward transfer in VG structure, is not only a paramount characteristic of WISE (each type of auxiliary has a distinguished fixed front –see F1 to F6 in Figure 2) but also reminds us of the alphabetic/telescoping arrangement of verbs. Quirk et al. (1985: 151) state «The different complex verb phrase types are ‘telescoped’ into one another»; and Downing and Locke (2006: 328) assert its relevance: «each semantico-syntactic feature of a complex VG (tense and modality, perfect, progressive and passive) is expressed, not by one element only, but by each element telescoping into the following one». These grammarians illustrate it with the fixed order of the alphabet letters ABCD, where a certain feature may be omitted, as in ABD or

AD, but cannot follow another appearing later, as in *CB. Thus we can take any complex VG now, like the one in «This site must have been being¹ developed for years now», and indicate its alphabet and telescoping arrangement together with our own visual version, as it is shown above (Figure 4).

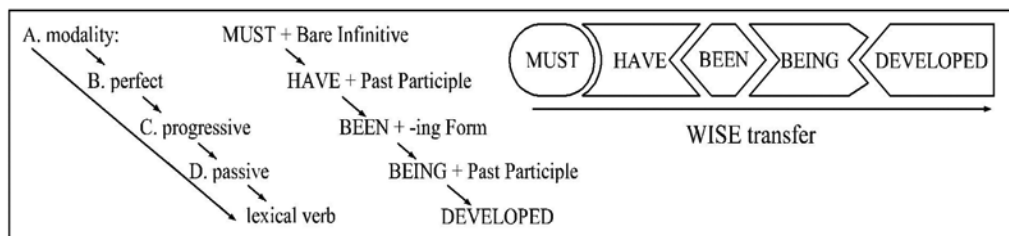


Figure 4. Alphabetic/telescoping arrangement of verbs and WISE representation.

In English, tense and modality are conveyed by the VG first element (the operator in extended structures) and, as a rule, they are reciprocally exclusive so that modals² and tensed verbs never co-occur. But whereas both modal and non-modal auxiliaries can function as operators (O), only non-modal operators (and lexical verbs appearing alone) can fulfil the subject-verb concordance, a feature rarely displayed in English. Even though here not fully developed, this operative disjunction can be indicated through the circular core of the first shape representing the VG, (Figure 5). Additionally, contracted forms –another

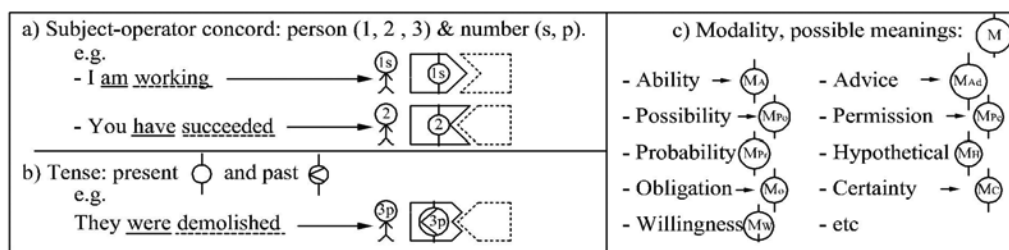


Figure 5. Grammatical values expressed in the core of the first verb.

¹ Utterances of this type («been being») are quite unusual but this fact does not imply that they cannot occur whenever the situation requires them. Nevertheless, though grammatically correct, they tend to be awkward. For this reason, ESP teaching should pay more attention to shorter VGs, more common in both written and spoken language and particularly in technical contexts.

² Here, modality is only drafted within the modal operator core, along with that other option first verbs have for showing tense and subject concord. However, modality alone might be the target of another scheme of LAV depiction, though it would require a non-morphological analysis of its own particularities, being the generated outcome necessarily different.

distinctive English characteristic that occurs mostly in casual or spoken language and through the operator– are easily depictable (Figure 6).

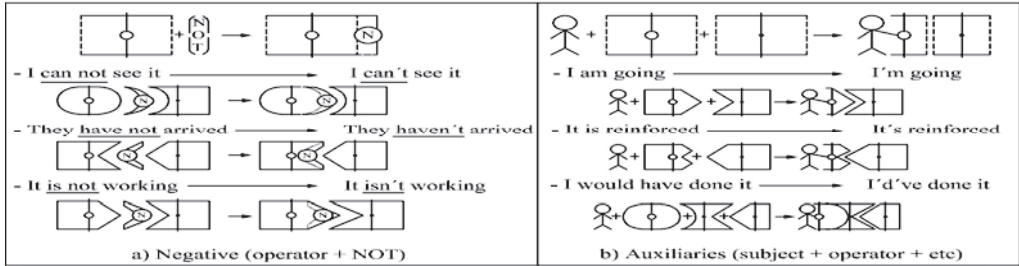


Figure 6. Abbreviated forms: negative and auxiliary contractions.

Another mechanism worth noticing is how WISE represents interrogative or negative verbal sequences, intervening adjuncts, verbal coordination or catenative sequences. Depending on the inserted non-verbal elements and their morphological effect within the verb assembly, three types of discontinuity are distinguished (Figure 7):

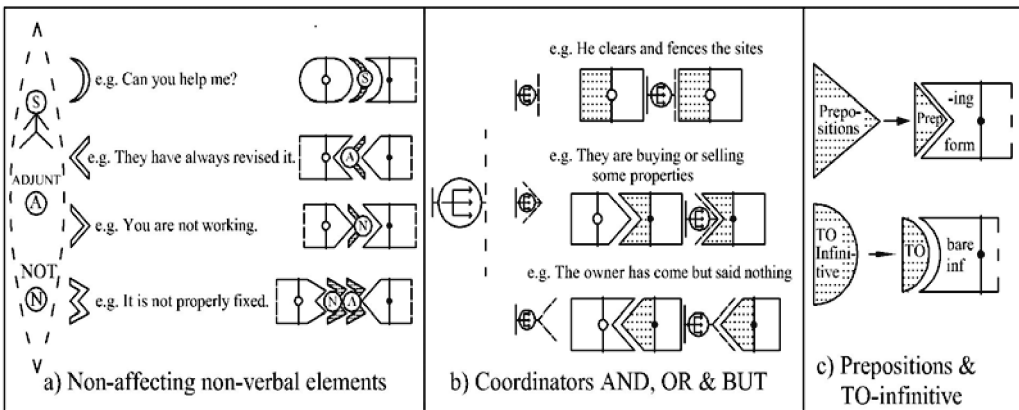


Figure 7. Discontinuities created by intervening non-verbal elements.

Non-affecting Discontinuity

The non-affecting discontinuity is a parenthesis created by the presence of inserted subject, adjuncts, intensifiers or negative items. All these intervening

elements are presented with a variable shape that replicates whatever preceding front contour forwards into the following shape.

Conjoining Discontinuity

The conjoining discontinuity is a verbal coordination performed either «by the linking words AND, OR and BUT; without any linking item; or by a combination of both» (Downing & Locke, 2006: 331) and typically appears between lexical verbs. Morphologically these links can be interpreted as a fork with the linked verbs duplicating their functional form.

Phasing Discontinuity

Finally, the phasing discontinuity is engendered by prepositions or TO-infinitives, which often generate dependent, two-phase catenative sequences. As in English they are respectively followed by -ing forms and bare infinitives, prepositions are drawn as forward arrow-like triangles, while TO-infinitives as forward semicircles. These shape assignments in turn allow other representations (Figure 8): First, the same forward round front of modals can also be allocated to lexical auxiliaries (have to, have got to, be able to, be about to, etc.), provided they are taken –even if only for operability’s sake– as a whole integrating the TO-particle. Second, these shapes also allow a picture of catenative structures, different chain-like sequences that symbolise a complex event consisting of two phases.

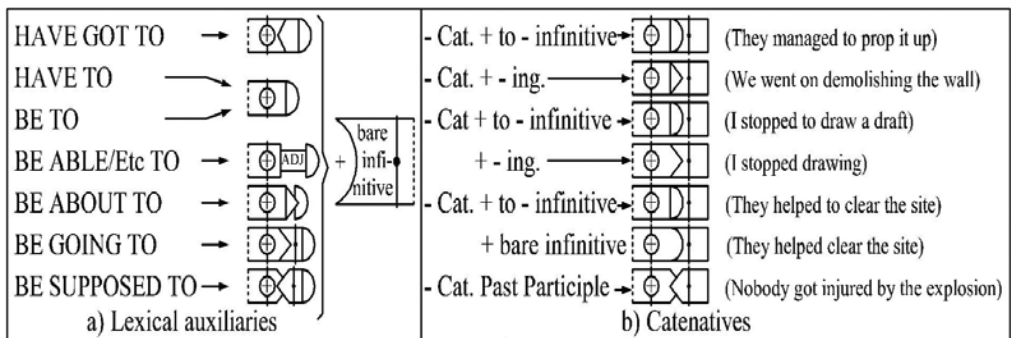


Figure 8. The structural pattern of lexical auxiliaries (from HAVE/BE) and catenatives.

TOWARDS A COMPLEMENTARY TEACHING RESOURCE FOR LSP

Virtually, the development of WISE allows the metaphor LAV (accessible in www.aelfe.org/documents/07_17_Palacios.pdf) to graphically construe most of the existing verb combinations. Taking advantage of the cognitive potential of exploiting visuals for language teaching (Myers, 2003; Jiang & Grabe, 2007), it draws on the fact that such resources as these are making students' academic life and cognitive learning style increasingly visual (Littlemore, 2004). By proposing to combine this system with the teaching of the English vocabulary of geometry, particularly to prospective architects and civil/building engineers, this paper does not only wish to take advantage of these students' abilities and academic profile but it also aims to address two important language needs in their ESP course: geometry and verbs. By extension, this approach could prove useful in any other course or, provided WISE scheme is correctly adapted, in any other language (thus including other LSP courses).

Thanks to its game-like appearance, WISE can improve the learning of the English verbal system, making people more conscious of the reach of agreement within VGs, explaining graphically all the verb categories at work or just improving students' linguistic awareness and competence on verbal production. It is particularly effective at illustrating and therefore correcting grammatical/graphic errors (see Figure 9), as the following examples show:

- 22) *They are currently poured concrete into the forms. 23) *He resolved it by reinforce the truss. 24) *The use of machines has improving their productivity enormously. 25)

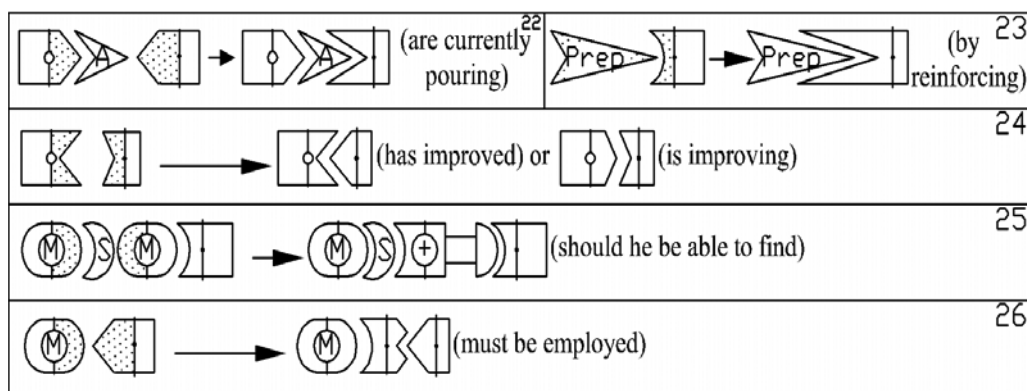


Figure 9. Some verb-related frequent mistakes made by low-level ESP students.

*Considering his expertise, *should he can find a solution?* 26) *Computers *must employed* to calculate all the different stresses. (Palacios, 2009: 116-117).

As example 25 above demonstrates, this visual account clearly reveals modals restrictions, because they cannot adapt their invariable round shapes to the changes necessary after any other verb shape. WISE not only can follow the basics governing the English verb system and make them graphically explicit. Additionally, it makes us comply with its fixed telescoped order. Thus, through the metaphor LANGUAGES ARE (LIKE) VISUALS and its mapping WORDS-IN-SHAPES EXCHANGE, visuals can definitively help to explain certain mechanisms of language and suggest some new perspectives of study and pedagogical patterns.

However, to avoid an otherwise likely disbelief or even reluctance towards LAV and WISE, it is convenient to clearly disambiguate some possible misunderstandings: First and foremost, *LAV and WISE developments are neither meant to replace standard grammar teaching nor to cover all existing aspects of grammar; rather, they should be taken as complementary shortcuts to comprehend some grammar mechanisms.* Second, the teaching of verbs morphology needs to be properly correlated to the teaching of verb tense uses. Third, the whole proposal needs checking its real didactic value through well-planned steps, including identifying and adapting appropriate cognitive models to exploit it pedagogically. In order to fulfil these requirements, there is an ongoing research project ultimately directed to prepare some support visual materials for a future computer application, a software prototype useful to carry out field studies and retrieve objective results. Given the visual nature of the proposal, this auxiliary software tool seems almost necessary if final assessments of LAV and WISE instructive potential are to be fair.

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SECTION 2
TECHNOLOGICAL INNOVATION IN GENERAL
FOREIGN LANGUAGE EDUCATION

THE STUDY OF DISTRIBUTED TEACHING PRESENCE IN ASYNCHRONOUS LEARNING NETWORKS (ALN)

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ABSTRACT: Our paper reports a model oriented towards the analysis of distributed teaching presence (DTP) understood as the exercise of educational influence; that is to say, as the set of supports and helps offered by and between the participants in an ALN to promote individual and collective learning. More concretely, we will present a multi-method approach to the study of the distributed teaching presence in ALN that combines structural analysis of the participants' activity with content analysis of the participants' contributions.

Keywords: Distributed Teaching Presence, Educational Influence, Asynchronous Learning Networks, Multi-method Analysis.

THE STUDY OF DISTRIBUTED TEACHING PRESENCE (DTP), THE MODEL AND ITS COMPONENTS

The concept of teaching presence (Anderson et al., 2001; Garrison & Anderson, 2003; Garrison, Anderson & Archer, 2000) has some similarities with the concepts of adjustment of educational supports and educational influence developed in the framework of a socio-cultural constructivist approach to teaching and learning processes (Coll, Onrubia & Mauri, 2008).

From this perspective, students and teachers, and more generally participants in learning settings, get involved in joint activities through which they progressively construct systems of shared meanings about the content which is being addressed and the task they are carrying out (Mercer, 1995; 2000). The progress in the construction of systems of shared meanings takes place thanks to the educational influence of others, that is to say, to the set of supports provided by the participants throughout the course of the joint activity. More concretely,

according to this approach, the supports offered during the joint activity can be oriented to the “organization of the academic task” (Stodolsky, 1991; Grossman & Stodolsky, 1995), the “organization of the social participation” (Erickson, 1982) or even the meanings being addressed by learning activity.

With this perspective in mind, the nature and intensity of the help that students can receive from the teacher and their peers, as well as the possibilities of adjusting this help to the process of knowledge construction that are being carried out, depend on their commitment and their involvement in the joint activity in at least two complementary levels: *participants' activity* in the digital context and the relevance of *their contributions in the process of shared meanings construction*.

In the framework of a multi-method approach to the study of Distributed Teaching Presence (henceforth, DTP) in the ALN, while structural analysis informs us about the potential degree of exercise of teaching presence and the potential degree of the distribution of the teaching presence among the participants, content analysis, following the map drawn by structural analysis, allows us to verify whether participants identified as potential carriers are in fact real carriers of teaching presence.

The Structural Analysis of the Activity

On the one hand, participants must access the digital environment from time to time, and they must revise –read– the others' contributions, and make contributions –write– with certain frequency and continuity in order to be able to help and guide the rest of the participants effectively, as well as to make use of the help and direction that they might receive from others. Thus, participants who meet these criteria (reading, writing and continuity) may be identified as potential carriers of teaching presence since they are able to offer adjusted and useful support to other participants. At the same time, meeting the criteria of access, reading and writing, these participants, thanks to a reciprocity principle, can take advantage of support offered by the other.

In order to analyze and understand this aspect of joint activity, we propose to identify the participants' activity profiles. The main data source in this case is the log files offered by the electronic environment. The structural indicators chosen for this analysis have been selected according to their relevance for gaining

information on the mutual processes of help, as well as on the possibilities of adjusting this help between the participants. Some of these indicators inform us on participants’ presence –in terms of access– in the platform –, their participation – written and read contributions– and the temporal continuity and distribution of this participation. Other indicators inform us on connectivity between the participants; that is to say, on with whom they interact and the established relations of reciprocity and responsiveness (see Table 1).

Table 1. Indexes used to identify the participants’ activity profiles and to establish suitable values for the exercise of the teaching presence.

PRESENCE	ACCESS	Individual Access Index <i>Total days with access to the platform / total days of activity duration.</i>
		Access pattern <i>Continuous/ Discontinuous</i>
	PARTICIPATION	Individual Reading Index — IRI <i>Total number of contributions read by one participant divided by the total number of contributions made by the other participants.</i>
		Individual Contribution Index — ICI <i>Total number of contributions from one participant by the total number of required contributions from each participant according to the instructions.</i>
		Individual Contribution Pattern — ICP <i>Distribution of contributions’ frequency in each period of the teaching and learning activity: High (H), Medium (M), Low (L) / Stable (H, M, L), Non stable Ascending (i.e. L-M-H), Non stable Descending (i.e. H-M-L) or Non stable Indeterminate (i.e. M-L-H)</i>
		The Individual Answer-Contribution Index — IACI <i>Obtained by dividing the total number of contributions made by one participant as a response to other participants by the total number of participant’s contributions.</i>
CONNECTIVITY		Individual Reciprocity Index — IRI <i>Obtained by dividing the total number of different reciprocal dyads in which one participant is involved by the total number of different reciprocal dyads in which the participant could be involved (n-1).</i>
		Individual Responsiveness Index — IRrI <i>Obtained by dividing the total number of responsive dyads in which a participant is involved by the total number of reciprocal dyads in which the participant could be involved (n-1).</i>

Taking account of the five main indexes simultaneously, we can establish activity profiles that can be evaluated according to their higher or lower level of

proximity to a theoretically ideal profile for exercising teaching presence. Some of our results (Coll, Bustos & Engel, in press; Coll, Engel & Bustos, 2009) show that the structural analysis enables the identification of two opposing groups of participants with regard to the suitability of their activity profile as potential carriers of teaching presence. So that, while the participants who fulfil all the criteria associated with the profile are clear candidates for contributing to the teaching presence, those who do not fulfil any of the criteria or only fulfil one of them can be practically excluded in this regard. Furthermore, some intermediate groups consisting of participants that only partially fulfil the requirements of the established suitable profile point to the possible existence of different modalities in the exercise of teaching presence.

The Content Analysis of the Participants' Contributions

But our approach to the study of the DTP includes also the analysis of participants' contributions. To exercise any kind of teaching presence, participants' contributions must be relevant to the process of shared meanings on content and learning tasks. This way, content analysis becomes another essential component of our approach to the study of distributed teaching presence.

The contributions of participants can be related to one or more of the three essential dimensions involved in joint activity: the management of the social participation, the management of the academic task and the management of meanings. The participants whose contributions provide supports in one or more of these dimensions may be identified as real carriers of teaching presence.

The management of social participation refers to the actions, contributions and communicative exchanges related to the establishment of rules about who can or should do what, how, when, with whom, how often, etc.

The management of academic task refers to actions, contributions and communicative exchanges to establish the rules associated with what to do, how to do it, the main procedures or steps to generate a final product, the definitions of which features should have the product, etc.

Both dimensions are essential to understand how participants organize their joint activity. Such kind of organization serves as a basis for establishing the context in which individual and collective learning may take place.

Finally, the management of meanings, in the context of joint activity, refers to actions, contributions and communicative exchanges directly related to content learning: requirements, providing personal meanings, formulating questions, request for clarification, synthesis, expressions of agreement or disagreement, etc.

Some results of the content analysis of our data show that, roughly speaking, the management of the academic task and of the social participation is carried out mainly by participants with activity profiles closer to the ideal profile of potential carriers of teaching presence (Coll, Bustos & Engel, in press). Moreover, although the management of meanings by almost all the participants, it is also higher and more specifically oriented to categories such as “Identification of topics or subjects”, “Contribution of synthesis or summaries” and “Identification or correction of misconceptions or misunderstandings” when the participants’ activity profiles are closer to the ideal profile of potential carriers of teaching presence. From our perspective these results suggest that several participants, and not just the teacher, are carriers of teaching presence, and that their contribution to teaching presence is varied because different participants assume different aspects of the whole process.

To sum up, in the framework of a multi-method approach to the study of distributed teaching presence in the ALN, the structural analysis of participants’ activity appears as a valuable complementary analytical tool. While structural analysis informs us about the potential degree of exercise of teaching presence and of the potential degree of the distribution of the teaching presence among the participants, content analysis, following the map drawn by structural analysis, allows us to verify whether participants identified as potential carriers are in fact real carriers of teaching presence.

Discussion

The Relevance of the Temporal Analysis

The study of distributed teaching presence places particular emphasis on temporal analysis. From the standpoint of the structural analysis, for instance, the relevant information is frequently associated with the temporal aspects of the participants’ activity. Thus, as we said before there is a minimum frequency for days of access under which it is practically impossible to follow the main thread

in the contributions, offer support to the other participants and therefore adjust the help that can be offered. But we also include the Access Pattern as an important component of the participants' activity profile because of the relevance of the continuity of access for the teaching presence. Participants with an Access Pattern that includes either long or relatively long periods without any access are unlikely to exercise any educational influence, since this makes it difficult to follow the contribution of the other participants and offer adjusted help.

Still in the structural analysis, the importance ascribed to the longitudinal dimension has led us to define an index which reflects the temporal distribution of the contributions of participants. The Individual Contribution Pattern (ICP) has to do with whether the participant makes at least one daily contribution or not, as well as with the evolution of number of days with at least one contribution in the successive periods or phases in which the whole instructional process is organized or divided.

Moreover, the temporal variable also has an essential role, from the standpoint of content analysis, in at least two ways. First, the categories used for the analysis of management of the social participation, academic task and meanings are based on the relationship between what has been said before and what is said after. This means that we consider the temporal contingency between contributions and fragments of contributions as a basic criterion. For instance, a «favourable evaluation» is categorized as such when we identify the previous contribution to which it relates; and a “response to a request made by other participants” refers to a «request for contribution of meaning from other participants».

Second and closely linked with the kinds of contingency between contributions, we are convinced about the interest to identify units of analysis wider than contributions or fragments of contributions. Given the process orientation of our approach to the study of DTP, it becomes necessary to explore threaded discussions that are closely related by the meanings or topics participants develop. Thus, from our perspective, the identification of topic and meaning-based threaded discussions –always longitudinally displayed– is one of the most relevant issues to the study of knowledge construction process in digital environments.

The Relevance of the Organisation

From our perspective the kind of organisation required in collaborative learning activities is closely linked to the management of the social participation and the academic task and closely related too with the temporal variable. As long as progress is made in the agreement on who does what, when, how and with whom (management of social participation) and what are the characteristics of the product to be delivered and the timing or schedule for processing (management of the task), participants are able to progress in the construction of shared meanings. Roughly speaking, the importance assigned to the construction of shared meanings in collaborative learning cannot be dissociated from the management of the social participation and the management of the task. In other words, the effort that participants must do in order to organize their activity cannot be separated from the efforts they must undertake with the purpose of constructing shared meanings.

In this sense, the longitudinal analysis of the organization efforts of participants appears as a relevant research area. In this case, the main issues are related to the opportunities to identify the time spent managing the participation or the task, the participants carrying out this management and the moments when it becomes necessary to renegotiate the organizational aspects in order to restore the joint activity and the shared meaning construction process.

Some Aspects Related with Tools Design and Information for the Participants

We think that awareness tools must be related to the management of social participation, task and meanings within the framework of the temporal variable. For instance, the structural analysis we have presented brings out certain participants' activity profiles which can support the monitoring of the ongoing processes of learning and collaboration and increase their effectiveness. Our results highlight the interest of the efforts aimed at the development of the software tools that provide relevant information on group and individual activity, that are able to present this information in an intuitive and friendly manner and that can be incorporated in online learning environments.

A software tool based on our approach to the study of distributed teaching presence would offer participants in an online learning environment a visual

representation of the individual and collective ongoing activity in terms of access, participation and connectivity, and also in terms of who, how and when is carrying out the management of social participation, the task and the meanings. Moreover, this kind of tool could enable a systematic comparison between the participants' actual activity profile and the ideal activity profile for teaching presence, informing about the degree of distribution of this presence among participants and furnishing relevant and useful cues for monitoring and improving individual as well as collaborative learning processes in the ALN.

Finally, from our perspective, the design of tools aimed to help students to increase their individual and group awareness should take into account the importance of providing users with activity information associated to pedagogical methodology such as way to support the monitoring of the processes of learning and collaboration and increase their effectiveness. The construction and dissemination of such a tool would be a great leap forward in the progress of the applied use of feedback/guidance mechanisms for learning and teaching efficacy. Some challenges arise from the construction of such kind of tools due to the need to take into account the contexts, situations and users. The target user groups are defined as culturally diverse, acting with in different CSCL and CSCW environments and they can be teachers, students, quality or project managers, researchers, etc.

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MODALITIES OF ASSESSMENT OF ONLINE LANGUAGE LEARNING MATERIALS

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ABSTRACT: Assessment, understood as a dynamic developmental process which develops and changes as the needs arise and as understanding of the process improves (Brown & Glasner, 1998), is considered as one of the key aspects in education due to both its influence in the way teachers and students address language teaching and learning and the changes it might introduce as far as methodologies, approaches and behaviour of all participants in the language learning process are concerned. This *washback* is present in the language classroom in the form of innovations and new ways of teaching and in students' motivation and learning strategies as well as in the adoption of new methodologies suited to the students' individual goals and needs. This article provides an overview of the assessment processes of basic skills and explores the ways in which *InGenio FCE Online Course* and *Tester* contribute to the effectiveness and efficiency of the assessment of those skills in both student self-assessment and tutor assessment. The flexibility of these materials allows students to choose between two different modalities of assessment, one of them enabling them to conduct their own learning process and to evaluate their own learning achievements in an independent, autonomous and individual way; and the other one leading to the development of their autonomy and sense of responsibility in the learning process while getting help and support from a human tutor.

Keywords: online materials, modalities of assessment, learning strategies, FCE.

INTRODUCTION

Assessment, the “dynamic developmental process which develops and changes as the needs arise and as understanding of the process improves” (Brown & Glasner, 1998), is considered one of the key aspects in education. The importance of assessment is due to both its influence in the way teachers and

students address language teaching and learning and the changes it might introduce as far as methodologies, approaches and behaviour of all participants in the language learning process are concerned. These changes, the so-called *washback effect*, are usually found in the language classroom in the form of innovations and new ways of teaching, which in turn can foster students' motivation and the emergence of a greater variety of learning strategies; and in the adoption of new methodologies and approaches to language teaching characterised by the efforts made by teachers to adapt the contents and materials that they develop to the individual needs, goals, interests and expectations of their students.

This article explores the assessment process of basic skills tested by the *Cambridge ESOL First Certificate in English Examination* (FCE) and the ways in which the *InGenio*¹ online preparatory materials contribute to the effectiveness and efficiency of this assessment in both student self-assessment and tutor assessment, with a special focus in two recently developed learning materials within the CAMILLE Research Group (Department of Applied Linguistics) at the Universidad Politécnica de Valencia (UPV): *FCE Online Course* and *FCE Online Tester*.

One of the main advantages of the *InGenio* materials is their flexibility, which allows students to have access to two different modalities of assessment and also to two different learning options, thus enabling a wider range of students with different characteristics and needs to choose and organise their learning processes in the most convenient way for each of them to obtain better results. The first learning modality offered, student self-assessment, enables students to conduct their own learning process and to assess their own learning achievements in an independent, autonomous and individual way, whereas the other learning modality, tutor assessment, leads to the development of the students' autonomy and sense of responsibility in the learning process while enabling them to get as much help and support as they need from a human tutor in order to accomplish the different tasks and to attain the target level.

¹ *InGenio* is a free online content delivery and management platform with a number of language courses available. Among them are: *Intermediate Online English*, *Valencià Interactiu – Grau Mitjà*, and beginners and elementary courses for learners of Czech and Slovak. The system has been developed by the CAMILLE Research Group led by Dr. Ana Gimeno (Department of Applied Linguistics – Universidad Politécnica de Valencia). See <http://camilleweb.upv.es/camille> for further information.

ASSESSMENT OF THE DIFFERENT SKILLS TESTED BY THE FCE

The importance of assessment mainly derives from the fact that it is capable of influencing the way language teaching and learning are addressed, in such a way that two of the main participants in the learning process –teachers and learners– are likely to introduce changes in their methodologies, approaches, behaviour and learning strategies based on “the particular kind of knowledge or ability that a test is designed to measure” (Read, 2000), that is, the construct. According to Buck (2001), the essential condition for any test to be acceptable is that it measures the appropriate construct, this being the only possible way to ensure validity and usefulness of that assessment. In order to design the right construct to measure the four main skills tested by FCE, it is important to know the micro-skills and strategies that the candidates need to put into practice to ascertain that they have the appropriate level; as well as the best way to assess those skills.

When it comes to assessing reading, it is important to follow several guidelines for teaching and curriculum planning mentioned by authors such as Grabe (1991, in Alderson, 2000): reading should be integrated together with other skills within content; the texts should be interesting and related to the candidates’ education, hobbies and interests; the different reading sub-skills should be measured; silent reading should be fostered, and so should be reading comprehension; and the person in charge of the assessment should be able to accept different interpretations of the texts, previously organising skills and strategies systematically, taking into account the characteristics and objectives of each group. To these guidelines, Alderson (2000) adds that it is important to find a way to measure reading accurately, considering to what extent tests reflect and are based on previous research and literature referred not only to the process but also to the product.

As for writing, in the past, it was considered as an indicator of someone’s belonging to the elite of the well-educated, but it is now an essential tool of communication in the global community we are living in. The role of writing has shifted from “conveying information” to “transforming knowledge to create new knowledge” while helping to predict future professional and academic success, which explains the great demand of valid and reliable ways to test the writing ability (Cushing Weigle, 2009).

There are two main ways to assess writing: direct and indirect. According to Hamp-Lyons (1991, in Cushing Weigle, 2009), the five main characteristics of a

“direct” test are that candidates must write at least one piece of continuous text, they are given a set of instructions or “prompts”, but have some freedom in their responses to it, each test is usually read by more than one trained rater, judgments are tied to a set of sample responses or rating scales, and these judgments are expressed as numbers. In addition, there are other important characteristics such as the limited time frame, generally between thirty minutes and two hours; and the fact that the topic is unknown to test takers in advance (Cushing Weigle, 2009). As for the “indirect” tests of writing or “timed impromptu writing tests”, they most often consist in multiple-choice tests of grammar and usage. As far as the process of test development is concerned, it occurs in three main stages: design, operationalisation and administration (Bachman & Palmer, 1996, in Cushing Weigle, 2009). These stages are followed by a very important procedure: scoring, which is used in making decisions and inferences about the performance by the exam takers and therefore must be accurate and derive from appropriate, theoretically-grounded and consistent rating scales and scoring rubrics (Cushing Weigle, 2009). Writing assessment has overcome dramatic changes due to the impact of technology and the increased global communication. In fact, the nature of writing itself has been affected by ICT in terms of process, norms and standards (Cushing Weigle, 2009) and the emergence of scoring of writing by computer is picturing the future of computers as supplements of human raters, especially in the case of large-scale writing assessments such as FCE.

As far as listening is concerned, this is considered as the least understood of all skills (Alderson & Bachman, in Buck, 2001), despite being the most important one due to its potential influence in teaching methodologies. It is also the most difficult skill to measure at a technical level, and it is time-consuming too, which may cause some teachers to be reluctant to test listening. Even though, it is essential to give listening assessment the importance it deserves, given that the consequent *washback* could influence teachers and make them aware of the fact that developing listening abilities is crucial for students to be able to communicate in the target language.

Finally, in relation to the assessment of speaking skills, numerous studies point out that this is one of the most complex and controversial aspects within second languages teaching (O’Sullivan, 2006). This is due to the difficulties encountered when trying to join the targets of the assessment and the appropriate tasks or instruments that assessment requires (Luoma, 2009). Moreover, speaking is considered as the hardest skill to be taught and tested through computers, which might explain the lack of representativeness of the studies focusing on speaking

(Levy & Stockwell, 2006). This makes the integration of the assessment of communicative speaking into CALL materials a true challenge.

Luoma (2009) conceives speaking assessment as a cycle in which the participants involved are the examinees, interlocutors, examiners, and the rating/marking criteria. The following figure illustrates the oral assessment activity cycle as described by Luoma:

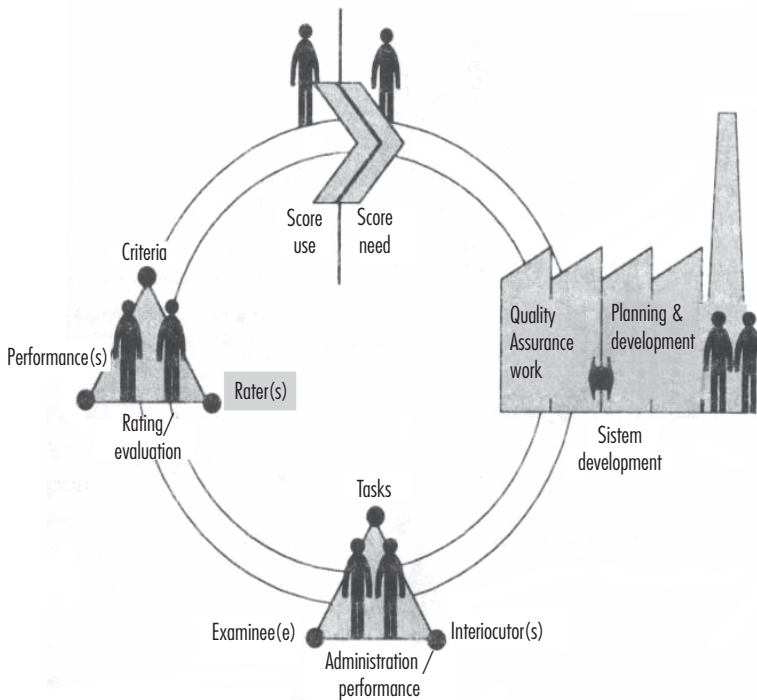


Figure 1. Oral assessment activity cycle. Adapted from Luoma, 2009.

As this graph shows, the cycle starts when a necessity of speaking assessment is perceived; and planning and development stages follow, resulting in the definition of the construct. Next, the criteria are determined and so is the way in which the exam is to be administered; following that, assessment takes place by means of two interaction processes: first, exam administration and candidates' performance in interactions (among the candidates and/or the examiner) in which they show their oral production skills; and second, a rating process in which the examiners apply the assessment criteria to the candidates' performance in order to obtain a grade for each of the candidates.

Prior to assessing speaking, the type of speech to be assessed has to be determined: planned or not, formal or informal, etc., because there might be substantial changes in the vocabulary choices, grammar constructions or pronunciation depending on the type of discourse (Luoma, 2009). Another factor that is likely to influence the type of speech acts is the social /situational context, which can be determined by using Hymes' SPEAKING model (1974) when planning and describing the construct:

Table 1. SPEAKING Model. Adapted from Hymes, 1974.

Setting / Scene	«Setting refers to the time and place of a speech act and, in general, to the physical circumstances» (Hymes, 1974: 55). Scene is the «psychological setting» or «cultural definition» of a scene, including characteristics such as range of formality and sense of play or seriousness (Hymes, 1974: 55-56).
Participants	Speaker and audience. Linguists will make distinctions within these categories; for example, the audience can be distinguished as addressees and other hearers (Hymes, 1974: 54 & 56).
Ends	Purposes, goals, and outcomes (Hymes, 1974: 56-57).
Act Sequence	Form and order of the event.
Key	Cues that establish the «tone, manner, or spirit» of the speech act (Hymes, 1974: 57).
Instrumentalities	Forms and styles of speech (Hymes, 1974: 58-60).
Norms	Social rules governing the event and the participants' actions and reaction.

SELF-ASSESSMENT AND TUTOR-ASSESSMENT IN THE FCE ONLINE COURSE AND TESTER

The modalities of assessment offered by the materials delivered by the *InGenio* Learning Management System developed by the CAMILLE Research Group at the Universidad Politécnica de Valencia, *FCE Online Course* and *Tester*, are self-assessment and tutor assessment.

CALL materials corresponding to the self- assessment modality aim to present a greater variety of materials and activities so as to allow learners with different learning styles and preferences to use them in the most convenient ways. These

materials include a greater number of reference materials, additional explanations, extra readings and extra self-assessment activities in order to help those students who are mainly learning with less or no help from a human tutor. Their main advantage is that they enable students to conduct their own learning process and to evaluate their own learning achievements in an independent, autonomous and individual way.

As for the materials designed within the tutor assessment modality, they provide more support materials to be used in the classroom context and materials specifically designed to provide support for the tutor, such as a teachers' guide, as well as the possibility of getting detailed reports about the students' performance and other tracking devices (Gimeno Sanz, 2008). The positive thing about this modality is the fact that it leads to the development of the students' autonomy and sense of responsibility in the learning process while enabling them to get help, guidance and support from a human tutor.

FCE Online Course and *Tester* also give students access to test simulations which are similar to the actual FCE in terms of level, structure, exercise typology and even administration mode, given that since January 2010 a computer-based version of FCE -CBFCE²- is available. The current development work carried out by the CAMILLE Research Group is now focusing on relating and adapting the content of these materials to the scientific and technical context of the Universidad Politécnica de Valencia with a view to enriching the students' specific knowledge (e.g. their technical and scientific vocabulary) so as to prepare them better for their future; while enabling the students to certify their B2 level of English, a new requirement to earn their degree at UPV, according to the guidelines established by the Bologna Process.

The self-assessment exercises and simulations included in *FCE Online Course* and *Tester* benefit from recent advances in the field of CALL in such a way that they put students in a similar situation to that of the FCE, helping them to be aware of their strengths and weaknesses at a point in which they can still work hard on those particular aspects they need to improve before facing the actual test. This is likely to lead to better results not only linguistically but also in affective terms, as being able to improve and even to predict their results before taking the test can foster the students' self-confidence and motivation while reducing their anxiety levels. These materials also allow designers to generate

² Further information can be found at <http://www.cambridgeesol.org/exams/general-english/fce.html>.

online assessment elements that provide valuable information about the students, available for teachers at any point so that they can observe and assess adequately the progress of every student. This is particularly useful in those cases in which these materials are used not only when getting prepared for the FCE, but also as learning and assessment tools specifically oriented to technical and scientific language learning.

FCE Online Course and *Tester* develop their full potential when used in combination, the first of these materials being an online course with different kinds of exercises –similar to the ones included in the FCE papers– to be completed first; and an assessment program including self-assessment exercises and simulations of the actual online examination, to be completed once the online course is finished and the students feel ready to face an examination situation. Prior to the design of simulations, a great number of exercises had to be compiled in a corpus of B2 exercises accessible through an online database including different typologies, either independent or based on texts, the text-based typology being more abundant, just as it is very frequent in the FCE papers. The simulations can be generated upon the users' request, the great number of texts and exercises included in the database allowing for numerous and randomized combinations.

CONCLUSION

The design of the *InGenio FCE Online Course* and *Tester* is a good example of the way in which the use of technologies in language learning can contribute to the effectiveness and efficiency of the assessment process of basic skills such as reading, writing, listening and even speaking in two main modalities: student self-assessment and tutor assessment. The students are allowed to choose between these two different modalities of assessment thanks to the flexibility of these materials, and their choice depends on their needs, preferences, learning styles and individual characteristics.

The self-assessment modality enables students to conduct their own learning process and to assess their own learning achievements in an independent, autonomous and individual way; while tutor assessment leads to the development of the students' autonomy and sense of responsibility in the learning process while enabling them to get as much help and support from a human tutor as they need. Both modalities have the common goal of making students think critically

about their L2 development while enabling them to make decisions and judgements about their own progress, what may be done in different ways depending on the assessment modality they choose.

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TEACHING SPANISH IN SECOND LIFE: A CASE STUDY

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ABSTRACT: Virtual worlds (VW) are becoming popular within the educational community. One of the most popular VW is Second Life (SL). Teaching languages to beginners poses many challenges. These challenges become more complex in these environments because of the lack of non-verbal language such as gesture, facial expression etc. to communicate meaning. Thus, other teaching strategies must be used. This article describes a case study of the action research (AR) process involved in the development of a Spanish course for beginners in SL.

Keywords: Second Life, virtual worlds, teaching Spanish.

INTRODUCTION

Virtual Worlds are becoming very popular within the educational community as 3D platforms for experimentation and innovation. Second Life, given its widespread availability and low entry costs, is one of the most known. The integration of voice, text, real 3D objects and movement provides an enormous potential for foreign language learning. Teaching languages to beginners poses a number of challenges, especially if done mainly through the target language in these environments. In a real life classroom, teachers must make use of non-verbal language such as gesture, facial expression etc. to communicate meaning, something which becomes more complex in virtual worlds where many of these features are not available. Thus, other teaching strategies must be found to teach beginners in this new context.

In spite of these challenges, the team of LanguageLab.com, a private organization which at the moment was offering English courses in SL, decided to develop and pilot a course of Spanish for beginners. The Spanish project was conceived in 2007 and the goal was to develop a 10-week course for complete beginners to provide them with basic linguistic competencies to ‘survive’ when travelling to Spanish-speaking countries. Due to the challenges involved in the project, it was decided to carry out a research (Burns, 1999) in order to study the

interactive, social and learning potential of SL for language learning to successfully design our course.

THE METHODOLOGY

The research as a whole was a combination of Case Study (Kemmis & McTaggart, 1988; Yin, 1989) and Action Research (Burns, 1999). In this way, our case study is a macro-vision of all the process of the AR. The study was carried out by the certified English and Spanish teachers who were to design and deliver the course, and the coordinator of the project. Qualitative strategies were used for data collection.

In order to guide the research towards the goal, the following four questions were asked:

1. How can languages be taught in Second Life?
2. How can we design a course to be delivered in SL?
3. Which language approach to teaching is the most appropriate for SL?
4. How do the affordances of SL impact on all of the above?

These questions were only the starting point, but were not viewed as a rigid framework for the research. The researchers maintained an open mind in approaching this new context and were sure that more questions and doubts would emerge in the process.

- The main objectives agreed for the research were:
- To design a course of Spanish for beginners in SL.
- To implement the course.
- To analyze all the components of the course and its appropriateness in SL.
- To reflect on the interactive, social and language learning potential of SL.

For this AR, the phases suggested by Kemmis & McTaggart (1988) have been followed as fundamentals for each of the cycles of AR:

- The plan.
- The action, that is the implementation or intervention.

- The observation of the effects of the action.
- Reflection, which is the base for future actions or cycles of the research.

The Planning Cycle

The resulting course was a product of meetings and discussions with the peer teachers and coordinator of the project and of a beta session with staff from LanguageLab. Planning meetings with the coordinator and teachers provided valuable insights of course design and materials creation for the development of the lesson plans for a beta course. Lesson plans for each class were designed and materials created during the planning phase. Prior to trials, the material was subjected to a step-by-step review which resulted in frequent adjustments. Each class was then closely piloted with the participation of the researchers.

The course was designed under the communicative paradigm and took on a number of approaches. Communicative approaches such as the *whole language approach* (Goodman, 1986) and the *task-based approach* (Nunan, 2004) were considered for the design. Also, given the immersive potential of SL, the functional-notional approach (Wilkins, 1976) were considered.

Course objectives were very specific and tied to the completion of real world tasks (e.g. checking in at a hotel, buying clothes, ordering food in a restaurant, buying food in a supermarket), which were accomplished through different enabling activities (role plays, guessing games, information gap, memory games, etc.). Bloom's Taxonomy (Bloom, 1956) was also considered to make sure the objectives of the course and each of the classes covered the different learning domains (cognitive, affective and psychomotor), and the categories within each domain. The psychomotor domain, cannot be neglected in a course in Second Life, since students should be able to master SL skills in order to successfully participate and complete any interactive course in this environment. Furthermore, one of our methodological approaches to teaching is Total Physical Response (Asher, 1981) which is intimately related to psychomotor skills.

The Implementation Cycle

A 10-week beta course was delivered to a group of 8 volunteer students/participants. The course consisted of two weekly 90-minute sessions for

a period of 10 weeks. The first session of the week was devoted to presenting the new language and practicing it through enabling tasks, and during the second session, participants put the language presented in the previous session into practice through a task linked to real life. Students were asked to fill in an online survey of their impressions on the course every week. Also, the teachers/researchers kept a field log to record their observations of the classes delivered.

While the beta course was delivered using the premises *languagelab.com* was using for their English classes, our program needed to avail itself of a sufficient variety of situational spaces – hotels, restaurants, banks, bus and train stations, retail and leisure spaces – to support the learning aims of the program. The choice was between a series of holodecks or to build a dedicated, integrated context for the course i.e. a Spanish town. We chose the latter route – named *Ciudad Bonita*, in a conscious attempt to make it as ‘real’ as possible.

The Observation Cycle

Weekly teacher meetings were held to discuss pedagogical aspects of the course in general and reflections on the most recent classes. The teachers and the coordinator who took the role of observant during the classes, participated in these teacher meetings. To carry out our study, different kinds of data was collected from the teachers-researchers, teacher-observer, and students in order to achieve the triangulation needed in qualitative research. Stake (1995) points out that case studies with a qualitative approach should emphasize on the quality of the activities and the processes. In this sense, and considering the importance of interaction in language learning (Pica, 1996; Long, 1996; Gass, 1997; Burton & Clennell, 2003), we used a rubric to assess the interactive qualities of our course: *How Interactive are YOUR Distance Courses? A Rubric for Assessing Interaction in Distance Learning* (Roblyer & Ekhaml, 2000).

We were also interested in valuing student engagement as a measure of course success. For this, the instrument “*Indicators of Engaged Learning*” (Jones, Valdez, Nowakowski, & Rasumssen, 1995) was used. This instrument was also used during the planning phase to guide our design, during the implementation phase, to observe student performance against the different variables of engagement, and finally, when analyzing student feedback of the course.

Apart from the qualitative instruments mentioned, some data collection instruments for systematization such as online surveys were used. Feedback from students was gathered through:

- In course and post course questionnaires (The *Indicators of Engaged learning* instrument was a fundamental source for the questions asked on these questionnaires).
- Online focus group sessions (The first group meeting was videoed for further analysis. During the other meetings, the researchers took individual notes and then compared them).
- Interviews with individual students.

The Reflection Cycle

Observation and reflection were the main means to assess our research in each of the cycles. The delivery of the beta course, the student feedback, the teachers' logs and discussions, and the data provided by the rubrics gave us invaluable information on the feasibility of the course and highlighted changes that needed to be made for the final product:

- The use of team teaching to facilitate the teaching of beginners.
- A change of approach from aural approach to a 4-skill approach.
- The inclusion of an SL skills session for the students prior to course start.
- The creation of a virtual city especially designed for this course.
- The use of web-based resources (wiki, podcasts, interactive online exercises).

Follow-up

The first public run of the Spanish course started in July 2008. It would correspond to the restarting of the AR cycles. This course was also delivered in 10 weeks, but with a 2-hour session and another, practice-based, session of 60 minutes every week.

As the course to date has been run four times, the major changes occurred during or following the first two cycles with some ongoing adjustments for every subsequent implementation.

LESSONS LEARNED

With the implementation of the different courses, we have learned some lessons:

- Groups of 8 to 12 were an ideal number. Going beyond that quickly had a disproportionate effect on the organisational efficacy.
- There was a need to provide support to make sure participants mastered the SL skills. A 'class 0' was included to go over the basic SL skills needed to undertake the course.
- Activities which involved a bodily (or avatar) response were useful to boost the students' confidence.
- It was important to provide technical support to ensure students have no sound problems as these problems can hinder the class.
- There was a shift from an emphasis on oral production to a more rounded, whole-language approach. This was incorporated along with the development of materials for other skills (reading and listening) which were added to the course but accessed mainly via the course wiki.
- There was a need for more visual aids to be added to the environment to support the students' learning. The teachers added these visuals through 2D illustrations or 3D 'rezzable' objects.
- There was a need for self-access materials to reinforce class sessions.
- Establishing a good atmosphere with students proved important for the well-running of the course. If a student did not feel a bond to the rest of the group, it was likely that he/she would not finish the course.
- It was clear from our experience that if we wanted to incorporate other teachers to the program, we needed to design a teacher training workshop to make sure the future teachers mastered the SL skills and the kind of methodology we were using.

CONCLUSIONS

After going through two phases of AR, the questions that guided our study have been broadly answered. In fact, it was possible to design a course for

beginners, create the necessary resources and activities to promote interaction and learner autonomy using a combination of teaching approaches; and according to our observations and feedback received, students accomplished the course objectives. Also, through the teachers' own experience, it was possible to design a teacher training workshop. After the first commercially launched course, a teacher training course containing the SL skills a teacher needs to master in order to teach in SL was offered. At the time of writing, four courses have been delivered, and each time adjustments has been made in order to cater to the different characteristics of each group of students.

We can also conclude that there are negative effects of unstable technology in SL while delivering a class. Sound issues (not being able to talk, listen, having background noise) can make students restless which can lead to lack of concentration. Other examples of problems faced when teaching or learning in SL are temporary unavailability of the SL platform, system slowdown or «lag» which hinders movements, and an inability to view class images and objects. However, the positive aspects of the experience have outgrown any of the encountered technological problems.

The results obtained in case studies cannot be generalized from a statistical point of view to other populations (Wallace, 1998). However, the results are important, in the first place, for the researchers involved in the study; and in the second place, because many questions can be generated from the results for further research.

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DIALOGIC FLUENCY – WHY IT MATTERS

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ABSTRACT: Numerous studies of spoken language have investigated scripts which were read aloud rather than the dynamics of real, unscripted, informal native-to-native (L1-L1) dialogues. Studying television or radio recordings is also problematic, as participants are in ‘broadcast’ mode, aware that they are being recorded and therefore unlikely to exhibit those reduced features of spoken language which are found in everyday interchanges. The FluenCi project, with its PHRASECON mini-corpus, aims at promoting learner integration into an English L1 speech community by studying the use of intonation and prosody in L1-L1 dialogues, particularly with respect to high frequency phrases. The absence of these ‘small words’ and intonation patterns is seen as detrimental to fluency by L1 listeners, and therefore the current paper outlines the concept of dialogic fluency and the role of the FluenCi project in attaining this goal. A tripartite structure for informal dialogic speech is also proposed.

Keywords: speech corpus, spoken corpus, formulaic sequences, fluency.

FLUENCY AND FluenCi

This paper deals with a new, emerging concept of fluency, particularly with respect to English as a Foreign Language (EFL). EFL learners, especially at the lower CEFR levels, naturally have to acquire a sufficient lexicon and grammatical knowledge in order to function in an English mother-tongue environment. But while this knowledge might be adequate, it is not sufficient to allow non-native users of English to integrate into a native user community, since L1 users do not speak in structured dialogues.

The paper introduces the concept of 'dialogic fluency' and how the EU funded Lifelong Learning Project, FluenCi, aims to provide EFL learners with a major stepping stone towards the goal of 'interactive fluency' as practised by native speakers in their daily, unscripted conversations.

L1-L1 SPEECH AS AN LSP

It might seem strange to consider spontaneous L1-L1 dialogue as a language for specialist purposes, but many dialogues presented to language learners could more correctly be described as 'interleaved mini-monologues', their purpose being to provide examples of grammatical sentences in realistic settings. They are designed to teach a foreign language, not prepare the learner for immersion in a real, native speech community. They have been carefully crafted by experienced authors, with one eye towards a learner-friendly progression of grammar and lexical complexity.

Real dialogues, on the other hand, are not scripted. They are worked out 'live', with neither speaker knowing in detail where the conversation will lead. In spontaneous L1-L1 dialogues the interaction is *not* pre-constructed, but rather evolves. This has a very significant effect on the language of the native speakers, whose key task is not to produce utterances worthy of imitation by language learners, but to respond in an acceptable fashion to the previous utterance(s) of the interlocutor. Real dialogues are social interactions, not linguistic exercises.

As Mehrabian (1981) has pointed out, when there is affective relevance to the interlocutors in a dialogue, only 7% of the communication is transmitted by the words chosen. When emotions are involved and personal feelings, wishes, fears, status etc. are important in the working out of the interchange, then 38% of the communication is effected by the *manner* in which the words were spoken. As higher primates we are extraordinarily sensitive to tonality, and every owner of a domestic pet will attest to the importance of tone in communicating with social animals.

Speaker interaction is therefore marked to a large extent by intonation and prosody. It is an interesting experiment to take one half of a lively, unscripted dialogue and listen particularly to the turn beginnings. It often becomes clear that the speaker is reacting to the interlocutor's input, rather than producing a

coherent string of monologically fluent speech. The fluency achieved by the speakers is *con*-fluency rather than a traditionally understood, uninterrupted flow of coherent speech.

MONOLOGIC FLUENCY

The goal of training dialogues is to enable the learner to produce grammatically correct sentences appropriate to the lifelike situation being modelled. This monologic fluency is a reasonable target for users of English as an international language, given that they are four times more likely to speak with a fellow non-native user of the language than with a native speaker of one of its many varieties.

In oral and written examinations students are likely to be marked down for disfluencies, which will be seen as demonstrating a lower level of linguistic performance. Pauses of more than one second will be understood by the examiner as indicating a lack of linguistic ability and graded accordingly. In similar situations the native speaker has a range of strategies to fill those gaps in a naturally evolving verbal interaction.

DIALOGIC FLUENCY

The objective of L1 speakers engaged in dialogue, however, is not to impress an examiner, but to realise a social or personal goal, with language forming only part of effective communication. Possibly the bulk of the communication devolves to prosody, shared knowledge and body language. Mehrabian (*ibid.*) calculates the prosodic component as representing 38% of the communication and the visual feedback as 55%. Yet how much time and effort are devoted to these aspects of L1-L1 communication in language classes?

Due to time constraints and the lack of suitable technological support, unscripted dialogues are not currently a mainstream resource used by language learners; nor is the dynamic interaction of L1-L1 dialogues taught in the classroom. Nevertheless all learners of English likely to come into contact with native speakers should be sensitised to native-speaker prosody.

INFLUENCE OF LIVE DIALOGUE ON SPEECH PRODUCTION

Given that the aim of an L1-L1 dialogue is not to provide learners with sample sentences, but rather to use language as a key factor in a social encounter, learners need a tool which will allow them to study the interactions displayed in real dialogues.

Of particular interest is the turn-taking behaviour of speakers, which is often flagged prosodically and produces utterances which, on the surface seem disfluent, but which on further analysis are seen to have an interactive function. In the construction of dialogic con-fluency speakers use prosody to flag their intention to take a turn – by force if necessary! They also use it to ‘hold the floor’ and leave themselves vulnerable to turn grabbing by the interlocutor, unless they use non-lexical fillers.

The development of such a software tool is the aim of the Dynamic Speech Corpus (DSC) currently being produced by the Dublin Institute of Technology, supported by funding from Enterprise Ireland.

THE DSC AND THE ATTRIBUTE TREE

The DSC is a learning and research resource built on informal L1-L1 dialogues and characterised by a high degree of naturalness combined with very high audio quality. There is a requirement for such a high audio quality (4 times that of CD recordings) in order to slow down the recorded speech so as to reveal the dynamics and the phonetic detail of the speech production.

The recording technique used promotes the production of the phonetic reductions and ‘blur’ of natural L1-L1 dialogue which learners find so difficult, but which are important in allowing the speaker to steer the dialogue by highlighting some sections and down-playing others. An understandable but fatal mistake made by many language learners (and some language teachers) is that every word in an utterance is equally important. This impression is fostered in written language where each word is neatly surrounded by a gap or punctuation.

The visualisation of spoken language using a spectrogramme, however, can easily demonstrate that there are no words in speech, but rather a continuum of sound. The role of this analogue audio signal is to trigger the mapping of discrete

words onto the stream of speech. While this top-down activity presents few difficulties to a native listener, many bottom-up language learners struggle with the blurred, unstressed parts of the L1 speech flow designed to highlight those parts of the utterance which are important to the speaker. They have not yet learned the stressed-unstressed patterns of English prosody.

The high recording quality allows the blur of natural speech to be slowed down (anywhere up to 40% of normal speed) so as to allow the learner to follow the melody of the speech and become sensitised to the role of prosody in L1-L1 communication. Should the learner wish to imitate the L1 speech production, then a gradual increase in the replay speed to, say, 60% and 80% (in reality, any desired speed can be chosen) each speed in turn being imitated by the learner, can lead to a native-like production ability.

Access to the reduced speech forms of unstressed speech sequences can be gained via the application, through tagging, of an ‘Attribute Tree’. This is a framework of labels for describing communicatively significant features of natural dialogue. The guiding principle is that if a native listener (especially one with experience in teaching EFL) ‘notices’ any aspect of speech production as deviating from a ‘neutral’ delivery, then that sequence is tagged using one of the labels of the Attribute Tree. Some of the main categories currently covered by the Attribute Tree are: speaker intention, turn construction, formulaicity, phonetic features and discourse function.

The same labels used to tag the natural dialogues can be used as a tool to retrieve the relevant audio sequences, as well as a tool for training the learner in the role(s) of prosody in natural communication. Searches conducted in the DSC can be based on a string search, on a tag search or on a combination of both. This very powerful search tool allows learners, authors/teachers and researchers to find multiple examples of the spoken feature being studied and to replay the original recording at any desired speed.

THE FluenCI PHRASECON

The FluenCi project, funded by the Leonardo Lifelong Learning Programme, is based on some of the findings emanating from the DSC. In particular, from studying DSC assets, the importance of collocations and high-frequency phrases in informal L1-L1 speech is becoming evident.

Erman and Warren (2000) have calculated that almost 60% of spontaneous L1-L1 dialogue is composed of formulaic language. These sequences are pre-constructed and fitted into an expressive envelope in which ‘c’est le ton qui fait la chanson’. The formulaic sequences can be lexical in nature, ranging from high-frequency collocates to full-blown idioms, or they can be syntactical/grammatical (such as: ‘I wouldn’t have ...’) and, in the rapid delivery of L1 speakers to L1 listeners, be subject to extreme compression and phonetic ‘erosion’ — a considerable challenge for EFL learners.

One of the key functions of formulaic sequences is to ease the cognitive burden on both speaker and listener, as according to Wray (2002) they are retrieved from memory as a unit and delivered as a unit. Since these formulaic building blocks are so frequent in informal speech, their true communicative effect often lies in the *manner* in which they were spoken (i.e. the expressive intonational and prosodic envelope in which they were delivered) rather than in the formulations themselves. Frequently these phrases are subject to ‘phonemic erosion’, and Campbell et al (2008) have demonstrated that there is prima facie evidence for an indirect correlation between the speed of delivery and the pitch range of formulaic chunks.

According to McCarthy (2010), the absence of these formulaic chunks, ‘small words’ and interactive features such as back-channelling, lead to the perception of a lack of fluency on the part of the EFL speaker. L1-L1 fluency is therefore more about the correct production and perception of intonation and prosodic patterns – including turn-taking behaviour – rather than a citation form of speech couched in impeccable grammar.

The EU FluenCi project, which started in January 2010 and is due to finish in June 2012, aims to sensitise learners to the role(s) of intonation and prosody in L1-L1 speech by illustrating their realisations in the high-frequency phrases which make up a large proportion of natural, spontaneous dialogue. These phrases form a PHRASECON of some 200 high-frequency collocations, as evidenced by the Cambridge and Nottingham Corpus of Discourse in English (CANCODE), part-owned by the commercial partner in the FluenCi consortium, Cambridge University Press.

THE PHRASECON AND STRUCTURED LEARNING MATERIALS

The collocations, chunks and phrases chosen for inclusion in the PHRASECON are embedded into Structured Learning Materials (SLMs) to be used by the two academic partners, the Dublin Institute of Technology and UNED, the Universidad Nacional de Educación a Distancia, with their various target groups: immigrant second level students, undergraduates, trainee teachers and prisoners.

These SLMs will allow EFL learners to study the PHRASECON phrases in their natural environment, in their most commonly used fashion. However, learners will also be provided with mini dialogic contexts in which the same phrases are used with differing intonational and prosodic patterns, illustrating different speaker intentions. Accompanying explanatory text will help learners notice the function of the suprasegmental levels of speech exemplified in the mini dialogues.

It is anticipated that the resources of the FluenCi project, when completed, will prepare EFL learners for principled exposure to the world of unscripted dialogue.

BEYOND FluenCI

It is the ambition of the FluenCi project to sensitise EFL learners to the roles of intonation and prosody in L1-L1 English speech communities. Built into the FluenCi project is an investigation of how FluenCi might interact with unscripted L1-L1 speech, as exemplified in DIT's Dynamic Speech Corpus. While the implementation of such a link goes beyond the scope of the FluenCi project itself, in the following section a tripartite structure of unscripted dialogue is proposed which will facilitate the development of this next step towards making natural L1-L1 speech accessible to EFL learners.

THE HIERARCHY OF UNSCRIPTED SPEECH

DIT's Dynamic Speech Corpus is based on a view of unscripted dialogue as having a three-level structure.

The highest level is the turn, defined as a dialogically significant interaction containing at least one 'flow sequence' (see below). This is the level at which both L1 speakers interact in their efforts to achieve the *confluency* described by McCarthy (2006). At this level both speakers interact live in their attempts to steer the conversation and maintain their turn or interrupt the interlocutor. Intonation patterns play a major role in turns, particularly at turn beginning and turn end.

The middle level in L1-L1 dialogues is the flow sequence, defined as a semantically coherent grouping containing at least one 'flow unit' (see below). This is the sequence of speech within a turn where speakers try – no matter how disfluently – to communicate their message to the L1 listener. Native speakers retain the content of a dialogue as a representation of this level when they listen in a top-down fashion. They can re-construct the content of the flow sequence, but will often find it impossible to imitate the exact lexical and phonetic manner in which that content was delivered.

The lowest level of the dialogic hierarchy is the flow unit, defined as a speaker-determined production with tonal coherence or ended by a perceptible pause. This is the level which causes difficulties for the EFL learner in that it operates at the phonetic level – worked out live by the L1 speaker – and is often characterised by monologic *disfluency*. L1 listeners retain the intonationally communicative aspects of flow units while attending to the semantic message of the flow sequence. EFL learners, on the other hand – depending on linguistic ability – tend to struggle with the segmental aspects of the flow unit in their bottom-up approach to informal L1 dialogue, which impairs their ability to listen like a native.

FluenCi aims to help EFL learners notice the role of intonation and prosody in informal speech, as a step towards helping them to cope with free-flow dialogues in a native speech community. Dealing with that unscripted dialogue in a structured fashion is the task of another project – the Enterprise Ireland funded FLUENT project.

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FORMALISING TEXT DIFFICULTY WITHIN THE EFL CONTEXT¹

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ABSTRACT: Readability indexes have been widely used in order to measure textual difficulty. They can be really useful for the automatic classification of texts, especially within the language teaching discipline. Among other applications, they allow for the previous determination of the difficulty level of texts without even the need of reading them through. The aim of this investigation is twofold: first, examine the degree of accuracy of the six most commonly used readability indexes: *Flesch Reading Ease*, *Flesch-Kincaid Grade Level*, *Gunning Fog*, *Automated Readability Index*, *SMOG*, and *Coleman-Liau*; and second, by means of the data obtained, try to come up with a new optimized measure.

Keywords: Readability indexes, text difficulty, EFL, modelling text difficulty.

INTRODUCTION

In the 1950s, readability indexes became increasingly popular, and researchers in the field devoted great effort to devising a substantial number of new formulae. As this study is not intended to provide an extensive review of all the readability formulae: *Flesch Reading Ease Score* (Flesh, 1948), *Flesch-Kincaid Grade Level* (Farr, Jenkins & Paterson, 1951; Kincaid, Fishburne, Rogers & Chissom, 1975), *Gunning Fog* (Gunning, 1952; DuBay, 2004), *Automated Readability Index* (Smith & Senter (1967; Smith & Kincaid, 1970), *SMOG* (McLaughlin, 1969) and *Coleman-Liau Index* (Coleman & Liau, 1975).

Readability indexes can be really useful for the automatic classification of texts, especially within the language teaching discipline. Among other applications, they allow for the previous determination of the difficulty level of texts without the need of reading them through.

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However, the main trouble with using readability indexes is their disparity, and this is precisely what has motivated this paper: attempting to unite their potentiality. It is certainly true that the limitations of these indexes have provoked much discussion and debate, and that in the last decades of the 20th century there was serious criticism on their extensive use in areas such as law, journalism or health care. Some representative instances of this scholarly controversy are Maxwell (1978) and Connaster (1999), who offered some reasonable alternatives to readability indexes like usability testing. Nevertheless, as DuBay puts it, “although the alternatives are useful and even necessary, they fail to do what the formulas do: provide an objective prediction of text difficulty” (2004:3).

RESEARCH GOAL

The aim of this investigation is twofold: first, examine the accuracy of six of the most commonly used readability indexes: *Flesch Reading Ease*, *Flesch–Kincaid Grade Level*, *Gunning Fog*, *Automated Readability Index*, *SMOG*, and *Coleman-Liau*; and second, by means of the data obtained, try to come up with a new optimized measure.

METHODOLOGY

Task and Procedures

In order to test the accuracy of the six readability indexes mentioned above, we shall calculate the indexes of 20 already graded texts, five texts for each linguistic level from the coursebook series *Innovations* (Dellar & Walkley, 2005a; Dellar & Walkley, 2005b; Dellar, Walkley & Hocking, 2004; Dellar, Hocking & Walkley, 2004). For each linguistic level (elementary, pre-intermediate, intermediate and upper-intermediate), 5 text samples were randomly taken.

Data Analysis

The preliminary data on the texts are given in Table 1 below. Note that the order of the text samples in Table 1 corresponds to its order of appearance in the various text books. Therefore, we might assume that text sample 1 (elementary, sample 1, LL-code 1) is easier to read than text sample 2 (elementary, sample 2, LL-code 1), and so on.

Table 1. Data summary.

Linguistic Level (LL)	Sample	LL-Code	Tokens	Characters	Sentences	Syllables	Complex words
Elementary	1	1	289	1161	37	312	5
Elementary	2	1	278	1112	25	330	7
Elementary	3	1	322	1426	29	399	12
Elementary	4	1	233	1014	41	270	4
Elementary	5	1	268	1104	21	320	3
Pre-interm.	1	2	306	1174	24	347	12
Pre-interm.	2	2	564	2089	43	608	6
Pre-interm.	3	2	444	1772	27	482	8
Pre-interm.	4	2	608	2453	44	676	15
Pre-interm.	5	2	661	3062	44	854	32
Intermediate	1	3	543	2249	39	631	16
Intermediate	2	3	648	2771	41	773	16
Intermediate	3	3	291	1196	19	347	5
Intermediate	4	3	606	2548	29	755	28
Intermediate	5	3	506	2267	28	653	17
Upper-interm.	1	4	408	1930	29	561	25
Upper-interm.	2	4	383	1774	30	508	22
Upper-interm.	3	4	596	2661	32	746	27
Upper-interm.	4	4	555	2665	26	744	34
Upper-interm.	5	4	564	2695	23	782	28

First, all readability indexes for each text were calculated; then all texts were ordered according to the respective readability indexes. Furthermore, in order to find out possible deviations between the textbook placing of the texts and the readability indexes, the mean divergences (*MD*) of all texts were calculated (Table 2).

Table 2. Text ordered according to readability ease and MDs.

Linguistic Level	Sample	LL-Code	ARI	C-LI	FRE	F-KGL	GFI	SMOG	MD
Elementary	1	1	1	2	1	1	2	2	0,50
Elementary	2	1	4	5	7	4	6	6	3,33
Elementary	3	1	8	13	10	7	11	11	7,00
Elementary	4	1	2	4	2	2	1	1	-2,00
Elementary	5	1	6	8	9	8	4	4	1,50
Pre-interm.	1	2	5	3	6	5	12	12	1,17
Pre-interm.	2	2	3	1	3	3	3	3	-4,33
Pre-interm.	3	2	11	7	5	10	7	7	-0,17
Pre-interm.	4	2	7	6	4	6	8	8	-2,50
Pre-interm.	5	2	15	17	13	14	14	14	4,50
Intermed.	1	3	9	9	8	9	10	10	-1,83
Intermed.	2	3	13	11	12	12	9	9	-1,00
Intermed.	3	3	10	10	11	11	5	5	-4,33
Intermed.	4	3	18	12	16	18	18	18	2,67
Intermed.	5	3	16	15	17	17	13	13	0,17
Up.-interm.	1	4	14	18	18	15	17	17	0,50
Up.-interm.	2	4	12	16	15	13	15	15	-2,67
Up.-interm.	3	4	17	14	14	16	16	16	-2,50
Up.-interm.	4	4	19	19	19	19	20	20	0,33
Up.-interm.	5	4	20	20	20	20	19	19	-0,33

A brief examination of the data above (Table 1) reveals that textbook sample 1 is typified by the readability indexes as the easiest one to read (*ARI*, *FRE* and *F-KGL*) or the second easiest one (*C-LI*, *GFI* and *SMOG*). In contrast, textbook sample 3 is, according to the readability indexes, the 8th, 13th, 10th, 7th, 6th or 11th most difficult text to read. This is a striking case, as this text seems clearly too difficult to read, and it is placed at the very beginning of the elementary textbook. According to the indexes, this text should not have been placed in the elementary book, but in a more advanced level: pre-intermediate (*ARI*, *FRE*, *F-KGL* and *GFI*) or even intermediate (*C-LI* and *SMOG*).

In order to determine the divergences between the textbook placing of the texts and the readability indexes, we have calculated the mean divergences (*MD*) of all texts.

According to the *MDs*, we find four texts which are presented to students that have not already reached the required linguistic proficiency to read them:

- Text 3; *MD*: 7.00
- Text 10; *MD*: 4.50
- Text 2; *MD*: 3.33
- Text 14; *MD*: 2.67

Similarly, also some linguistically less demanding texts are offered to the students:

- Text 4; *MD*: -2.00
- Text 11; *MD*: -1.83
- Text 18; *MD*: -2.50
- Text 9; *MD*: -2.50
- Text 17; *MD*: -2.67
- Text 13; *MD*: -4.33
- Text 7; *MD*: -4.33

Data also reveal that some texts seem to have been improperly placed, as their linguistic demand is higher/lower for the textbook they appear in:

- Text 3 – *elementary*; should be *pre-intermediate*
- Text 14 – *intermediate*; should be *upper-intermediate*
- Text 15 – *intermediate*; should be *upper-intermediate*
- Text 11 – *intermediate*; should be *pre-intermediate*
- Text 17 – *upper-intermediate*; should be *intermediate*
- Text 13 – *intermediate*; should be *pre-intermediate*
- Text 7 – *pre-intermediate*; should be *elementary*

In order to determine the accuracy of the readability indexes, we shall first order the texts according to their *Index Means (IMs)* and re-typify them as being elementary ($IM \leq 5$), pre-intermediate ($IM \geq 5$ and ≤ 10), intermediate ($IM \geq 10$ and ≤ 15) and upper-intermediate ($IM \geq 15$). The re-typification (*New LL-Code*) is given in Table 3. *SMOG* and *C-LI* are the least precise ones, though their correlation values are highly significant.

Table 3. Texts re-typified according to IMs.

Text book	Index Mean	Linguistic Level	New LL-Code
1	1,5	Elementary	1
4	2	Elementary	1
7	2,67	Elementary	1
2	5,33	Pre-interm.	2
3	10	Pre-interm.	2
5	6,5	Pre-interm.	2
6	7,17	Pre-interm.	2
8	7,83	Pre-interm.	2
9	6,5	Pre-interm.	2
11	9,17	Pre-interm.	2
13	8,67	Pre-interm.	2
10	14,5	Intermed.	3
12	11	Intermed.	3
17	14,33	Up.-interm.	3
14	16,67	Up.-interm.	4
15	15,17	Up.-interm.	4
16	16,5	Up.-interm.	4
18	15,5	Up.-interm.	4
19	19,33	Up.-interm.	4
20	19,67	Up.-interm.	4

Regarding wrong linguistic level assignment, *ARI* and *F-KGL* accounted for five errors, *C-LI* for six errors, although text 13 was two-level wrongly assigned to *upper-intermediate* instead of *pre-intermediate* (see Table 4); *GFI* for seven errors; *SMOG* for ten errors (and a two-level wrong assignment); and *FRE* for eleven errors.

Table 4. LL-assignment errors.

Text book	New LL-Code	ARI	C-LI	FRE	F-KGL	GFI	SMOG
1	1	Correct	Correct	Correct	Correct	Correct	Correct
2	1	Correct	Correct	Correct	Correct	Correct	Correct
3	2	Incorrect (1)	Incorrect (1)	Incorrect (1)	Incorrect (1)	Incorrect (1)	Incorrect (1)
4	1	Correct	Correct	Incorrect (1)	Correct	Correct	Incorrect (1)
5	2	Correct	Correct	Incorrect (1)	Correct	Correct	Correct
6	2	Correct	Correct	Correct	Correct	Incorrect (1)	Incorrect (1)
7	1	Correct	Correct	Incorrect (1)	Correct	Incorrect (1)	Incorrect (2)
8	2	Incorrect (1)	Correct	Incorrect (1)	Correct	Incorrect (1)	Correct
9	2	Correct	Correct	Correct	Correct	Correct	Correct
10	3	Incorrect (1)	Correct	Incorrect (1)	Incorrect (1)	Incorrect (1)	Correct
11	2	Correct	Correct	Incorrect (1)	Incorrect (1)	Correct	Incorrect (1)
12	3	Correct	Correct	Correct	Correct	Correct	Incorrect (1)
13	2	Incorrect (1)	Incorrect (2)	Incorrect (1)	Incorrect (1)	Incorrect (1)	Incorrect (1)
14	4	Incorrect (1)	Correct	Incorrect (1)	Incorrect (1)	Incorrect (1)	Incorrect (1)
15	4	Correct	Incorrect (1)	Correct	Correct	Correct	Incorrect (1)
16	4	Correct	Incorrect (1)	Incorrect (1)	Correct	Correct	Correct
17	3	Correct	Incorrect (1)	Incorrect (1)	Correct	Correct	Incorrect (1)
18	4	Correct	Incorrect (1)	Correct	Correct	Correct	Correct
19	4	Correct	Correct	Correct	Correct	Correct	Correct
20	4	Correct	Correct	Correct	Correct	Correct	Correct
<i>Total errors</i>		<i>5 (5)</i>	<i>6 (7)</i>	<i>11 (11)</i>	<i>5 (5)</i>	<i>7 (7)</i>	<i>10 (11)</i>

Surprisingly enough, the three indexes that best adjust to the *New LL-Code* use different measures. As commented on above, *ARI* uses mean word length and mean sentence length, and to obtain the *F-KGL* index, we need mean sentence length and mean syllable per word. On the contrary, *GFI* gets its index from mean sentence length and average number of complex words. In this way, the calculation of the *ARI* and of *CLI* is straightforward; some easy text processing by means of any standard concordance program will output the information required to calculate this index (i.e. *WordSmith*²). Nonetheless, *F-KGL* and *GFI* are more

² <http://www.lexically.net/wordsmith>.

demanding as we need reliable software syllable counting (i.e. *WordCalc*³ or *Syllable Counter*⁴). These applications are less consistent and result data might vary significantly.

Regarding complex word count (words with three and more syllables), we performed some preliminary experimenting and evidenced that 95% of all English words with 8 or more characters do entail at least three syllables; this is the measure which has been used to calculate the *GFI* index.

MODELLING A NEW INDEX

To attempt the modelling of a new readability index able to classify text samples according to reading ease, we shall take:

- The data on the various texts analyzed (Table 1), entailing all the distinct measures required by the individual readability indexes examined, and
- The *New LL-Code*, as this is a sort of average measure of all individual readability indexes we have considered.

We shall try to model an index by means of *Discriminant Function Analysis* (*DFA*, hereafter). *DFA* is concerned with the problem of assigning individuals, for whom several variables have been measured, to certain groups that have already been identified in the sample. It is used to determine the variables that discriminate between two or more naturally occurring groups. Thus, our aim is not just to measure and model reading ease, but also to look at the dataset that best describes it.

The *DFA*, using all variables (tokens, characters, sentences, syllables and complex words) outputs very promising results: only two errors (see Table 5). One elementary text has been assigned to pre-intermediate (text 2) and an upper-intermediate one has been classified as an intermediate one (text 15). This gives an overall precision of 90% compared to the best precision scores of two readability indexes above (*ARI* and *F-KGL*) of 75%.

A further use of *DFA* is that, if it has turned out to be positive, it is possible to generate a predictive discriminant model to classify new cases. By means of the

³ <http://www.wordcalc.com>.

⁴ <http://www.wordcalc.com>.

Fisher Coefficients, we are given a table (Table 6) with a constant value and a number of coefficients for each of the variables (tokens, characters, sentences, syllables and complex words) with reference to each readability–ease level.

Table 5. Preliminary DFA

New LL-Code	Predicted Group Membership					
		Element.	Pre-Intermed.	Intermed.	Upper-Intermed.	Total
Count	Elementary	3	1	0	0	4
	Pre-Interm.	0	7	0	0	7
	Intermed.	0	0	3	0	3
	Upper-Interm.	0	0	1	5	6
%	Elementary	75.0	25.0	0.0	0.0	100.0
	Pre-Interm.	0.0	100.0	0.0	0.0	100.0
	Intermed.	0.0	0.0	100.0	0.0	100.0
	Upper-Interm.	0.0	0.0	16.7	83.3	100.0

Table 6. Fisher Coefficients.

	Readability–ease level		
	Elementary	Pre-intermed.	Intermediate
Tokens	-0.149	-0.116	-0.266
Characters	-0.068	-0.043	-0.055
Sentences	1.361	0.795	1.019
Syllables	0.356	0.260	0.442
Complex words	-0.434	-0.207	-0.186
(Constant)	-21.862	-13.091	-31.817

This gives four equations, one for each readability–ease level. To illustrate the potential applicability of the equations above, we can take, for example, a randomly chosen text with tokens = 300; characters = 1,200; sentences = 40; syllables = 400; and complex words = 10, will be assigned to the readability–ease level with the largest resulting value according to the four functions above. Thus, maximising the four coefficients we find that this text is most likely to be an elementary text, as *Elementary* is the highest resulting coefficient (44.338); in

second place, it would be classified under *Intermediate* (34.239). The least likely group membership would be *Upper-intermediate* (30.672), as the coefficient obtained in the corresponding equation is the lowest one.

CONCLUSIONS

Readability indexes can be really useful for the automatic classification of texts, especially within the language teaching discipline. Among other applications, they allow for the previous determination of the difficulty level of texts directly extracted from the Internet. The problem is that these indexes may offer disparity, and this is precisely what has motivated our attempt to unite their potentiality, utilizing each variable used by them. A discriminant analysis of all the variables under examination has enabled the creation of a much more precise model, improving the previous best results in 15%. It is also worth noting that errors or disparities in the difficulty level of the analyzed texts have been detected.

Our intention is to go more deeply into the refinement and use of readability indexes for areas such as automatic classification of texts, especially within the area of language teaching, comparing different languages and confirming whether these indexes offer a similar degree of precision or if they require any adjustment for its calculation as far as variables are concerned.

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ON-GOING IMPLEMENTATION OF LINGUISTIC INNOVATIONS IN MADRID

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ABSTRACT: During the last decade, social, cultural, economical and hence, educational evolution has been changing the world as we know it at an almost exponential speed; this evolution could be well seen as a revolution, and we have to prepare our society for fundamental innovations. The Community of Madrid is facing the challenge of improving the educational system, from infant to vocational studies, in two essential areas: Bilingualism (mostly English) and Technology. The aim of this brief paper is to outline the institutional framework where the Comunidad de Madrid is offering teachers, students, and schools opportunities to train, learn, develop and innovate. Teacher training systems and their varieties will be explained.

Keywords: Bilingualism, teachers training for language development, Comunidad de Madrid, Bilingual approaches, CLIL.

THE ISSUE: BILINGUALISM

Language has existed from the very first stages of human evolution. Cultures, societies and man cannot be without language. In fact, humans are born physically incomplete, totally dependant on others for a long period of time, and it is society and culture that make us become human.

Since the first migrations from the Rift valley, language has been the most important factor for human survival, social formation and cultural shaping. Each culture creates its own language, which evolves dynamically and it is interwoven with necessary adaptations to new environments and interpretations of the world; we are social, hence, linguistic beings.

Cultural and linguistic exchanges have played a mayor role in evolution from the very beginning of humankind. As a matter of fact, languages are the product

of multiple dynamics of cross-relationships between socio-cultural connections. Therefore, concepts as bilingualism or plurilinguism are not a new issue at all, but a main part of our nature.

What is new, returning to present day, is the role that languages are playing in our present global society compared to previous historical stages when different language acquisition was mostly intuitive and non formal. Today the social need for finding effective ways for a global communication across cultures has led to the imperative role language acquisition has in society. *This new role for language acquisition implies the inclusion of language learning in formal institutional academic environments.* This issue, as usually happens in most innovation implementations, has raised some *concerns and controversy* in the whole society, especially among those who are in charge of developing feasible and effective practices to achieve the goal of bilingualism. Due to its main-streaming commitment to bilingualism, particular mention should be made for the Comunidad de Madrid,

There are common myths about bilingual learning. Let us take a deconstructive look at some of them:

- Growing up with two or more languages will only confuse your child:
 - This misconception was refuted by cognitive and neurological research that found in bilingual subjects higher neuronal activation and more flexible thinking.
- It takes longer for bilingual children to learn how to speak:
 - Scientific evidence shows that bilinguals are either at the same level or ahead of monolinguals.
- It is too late to learn another language:
 - It is never too late. It is only easier when the students are younger.
- Bilingual children are not good at Math and Science:
 - On the contrary, bilingualism reinforces their ability to think logically.
- Bilingual children can be only raised by bilingual parents:
 - On approaches to bilingualism the most effective ones depend on the usage and exposure to the target languages. The sole fact of having parents with different dominant languages does not determine the proficiency in both languages at all.

Finally, bilingualism has not an only way to become achieved. Depending on the age of acquisition there is “early” bilingualism –before 6 years old, “late” bilingualism refers to language acquisition after 6 years old. About the amount of time and areas taught in the target language, there are total immersion programs (100% time devoted to the target language) and partial immersion programs(30% – 50% time for the target language).

Other linguistic terms to be considered in bilingual fields are: *Dominant language*, the language where the learner feels more confident; the preferred and most used language and *weak language: the language used less often* for where he/she feels less confident.

It is important to highlight that differences across dominant and weak languages do not only depend on the amount of academic time devoted to them, but on a complex network of different factors not only related to school, but also to subjective, motivational and emotional issues that guide the usage and values that the learner allocates to the different languages; for language is a main force of identity.

Theory Matters

Sometimes daily teaching practices forget about theory. This is a great mistake since practice without theoretical foundation doesn’t make sense; it becomes a chain of actions without direction nor field perspective.

Herein I will just point out some of the main theories that can help bilingual practice to make sense.

— *Neuroscience and neurolinguistic* research findings support bilingualism by showing that neuronal connections in bilingual subjects increase and their brain activates more neuronal areas. Brain plasticity expands with language learning.

— *Multiple intelligences* theories illustrate how different learning styles and strategies widen learning possibilities by using multiple fields and tools for the learning process, as well as giving the chance to adjust practices to the specific needs of individual students.

— *Cognitive abilities* linked to multiple intelligences provide means to sequential learning and help teachers to assess students’ balanced learning.

— *Constructivism and significant learning* help to design the process of language content acquisition and to expand that acquisition to other areas. They also highlight the role of the student as active agent, responsible for his/her learning.

— *Complexity and non linear theories* applied to language acquisition broaden the expectations of the learning process and point out how unexpected factors can influence (attract or detract from, appear in or change) the learning process.

Daily teaching practices, especially educational innovations, should find time to look into new theoretical and research findings.

Methodologies and Technologies

Not so long ago was the time when learning foreign languages was almost an heroic task; communication technologies were scarce, connections with other cultures and interchanges between countries had few opportunities to happen to common people and state-nations interchanges rarely happened. Methodologies for learning foreign languages were unconsidered; the most popular English learning program was that of Basil Potter that started with a sentence almost impossible to use: “My tailor is rich”.

Fortunately, nowadays technologies have provided us with efficient varied tools accessible to a majority of people enabling us to access cultures, communicate quickly and foster interpersonal relationships. Today, technologies have been introduced into all levels and subjects of the learning process. The use of technologies support and organised language achievement through direct use of gadgets, classroom and school virtual communities, blended learning, teachers interchange of materials and experiences, on-line support to students and families, access to materials and fast communications.

In fact, our students are said to belong to a “Cyber” generation where mobile phones, computers, MP (3, 4, 5 and increasing) as well as many other gadgets are common place. This exposure to the world has changed our students’ habits and learning expectations, so the teaching process has to use them to be effective. Contents and technologies must be related to the students’ real world and daily practices. In this sense, it is important to use and re-direct students’ habits outside school because most children spend hours with computers, mobile phones and virtual communities where they listen to music in English or watch films made in English. Those are situations that should be used to make English language closer to their leisure experiences.

Today, in contrast with earlier times, learning foreign languages and especially English is just something “easy”, necessary, accessible and “natural”. Still, of course, language learning is demanding. Simple passive exposure to English will not provide learning; learning will only happen with students’ effort.

Methodology contains 5 domains for language learning: listening, reading, writing, speaking and communication. I would add another domain that I consider essential: *Cultural understanding*. Without understanding cultural values, rituals, meanings, perceptions, performances and taboos there will only be a very restrictive mastery of languages, mostly mechanical but unrealistic.

The methodological approach to Bilingualism in most European countries is CLIL: Content and Language Integrated Learning, which teaches both the target language and curricular content instruction.

CLIL develops communicative approaches to interdisciplinary contents using an interactive feedback methodology. It provides exposure to the language in academic domains presenting natural immersion contexts of language acquisition by extending the fields of domains and function of language in use. This methodology requires a slower and deeper path of teaching practices and requires emphasis on study skills. Here, communication becomes essential for the target language as a means of interaction, not an end in itself.

CLIL has also attracted attention not just as a methodology itself but as a way of understanding learning, making it accessible, interactive, communicative, pleasant and meaningful.

Again, I have to remark that *the usage, the appropriation of English* as a means for *varied communication situations* is essential for language learning.

THE COMUNIDAD DE MADRID APPROACH TO BILINGUALISM

Due to the evolution of educational needs in our current global society, the Comunidad de Madrid has taken the challenge to implement a bilingual programme English-Spanish since the school year 2004–2005.

The Comunidad de Madrid has several distinctive features, compared to other national and international bilingual systems:

The Bilingual programme in Madrid is non compulsory. Within Spain, a tendency in some Autonomous regions, to force education and other institutional venues to use as the main language their historical, in some cases re-created languages to the extreme of leading languages within a limited territorial and cultural usage either as a matter of cultural identity or to economic and political interests.

Madrid is far more flexible about bilingualism. Schools are not forced to implement bilingualism; Madrid is offering and facilitating to demanding schools programmes and training for English bilingualism, as well as reinforcing foreign languages by providing language departments.

The Bilingual programme in Madrid is not reduced to pre-designed schools but is main-streaming. It is a common statistical fact within European and post-industrial countries, that bilingualism shows the highest rate of acceptance and educational practices in the two edges of population welfare range. On the one hand, migrant populations with very low incomes need to become bilingual in order to adapt themselves and be an active part in the new culture they came to, otherwise they would surely be socially outcast. On the other hand, populations with higher welfare rates and educational level understand the need to master at least one foreign language in order to be prepared for a global society. In this regard, students who attend prestigious private bilingual institutions such as the British Council, French Lyceum or Goethe Institute are mostly attended by students coming from privileged household environments.

The Comunidad de Madrid offers an open and non-restrictive bilingual program to any demanding school that commits and fulfils the requirements provided in order to ensure criterion for educational quality, school communities engagement, effective teaching domain and programme continuity. Schools in Madrid undergo external and internal assessments.

Table 1. Spanish-English Program for Primary Bilingual Public Schools in the Comunidad de Madrid.

School year	2004/2005	2005/2006	2006/2007	2007/2008	2008/2009	2009/2010*
Bilingual schools	26	80	122	147	180	206
Teachers trained in bilingualism	120	370	610	890	1.134	1.382
Language assistants	50	154	285	437	508	600
Students being taught bilingually	1.300	5.300	11.400	18.750	30.000	40.000
Students who took the Trinity College of London exam	-	1.715	3.193	5.694	9.177	-
% students who passed the Trinity exam	-	87%	90%	94%	90%	-

Source: Dirección general de Mejora de la Calidad de la Enseñanza.

* Estimated data

The Comunidad of Madrid has been making a strong economic effort to provide Public Schools, Private Schools with agreements with the Comunidad, and Schools with agreements with the Ministry of Education and the British Council.

Financial funding includes: Teacher training programmes during the school year and teacher training programmes during Summer vacation in Madrid and abroad; such as universities in the USA, Canada, Ireland and the UK.

Technological and methodological resources are also given, as well as opportunities for student exchanges and short visits abroad.

Investments in research for teaching materials and sharing teaching experiences are also undergoing.

Table 2. Bilingual programme expenses provided by the Comunidad de Madrid*.

School year	2004/05	2005/06	2006/07	2007/08	2008/09
Public schools	2,592	4,841	6,289	8,299	9,010
Private agreement schools	-	-	-	227	425
British Council agreement	-	-	-	-	1,591

Source: Dirección general de Mejora de la Calidad de la Enseñanza.

* Estimated data in thousand Euros.

The Bilingual programme in Madrid, from the school year 2004/5 to 2009/10 has mostly focused on Primary education. Since 2004, Madrid has implemented a Spanish-English bilingual programme that provided 250 Primary education schools that had served more than 60,000 students, covering all courses in Primary education; 206 public centres and 44 private centres with institutional agreements.

Incorporating CLIL bilingual system adopted by the Comunidad de Madrid means that 30% to 50% of subjects are taught in English; subjects such as Music, Arts, Physical Education, Social Studies, Sciences. Spanish language and Maths are the only subjects not taught in English.

In order to continue with this program, during the next school year 2010/2011 bilingualism will include Secondary education centres. The implementation of bilingualism in Secondary education will be progressive, starting with the first academic course; 32 secondary schools are ready to follow the bilingual program reaching about 5,000 students, and there is another opening in September 2010 for 20 Secondary schools to join the program in 2011.

Early bilingualism is also considered for infant education, where nowadays 180 infant schools hold an introductory programme to bilingualism. Students from 3 to 6 years old attend a minimum of 90 minutes per week in English.

Madrid is truly committed to bringing students from all levels an opportunity to become bilingual.

Teacher Training

Successful educational innovations and practices require as essential conditions the commitment of the whole educational community; Institutions, school communities, family involvement, and students' motivation and dedication to learning.

The Comunidad de Madrid, through its own institutions and other associated programmes offers a wide variety of programmes to train teachers for successful and adjusted bilingualism practices. The main institution in charge of Teacher Training is the Dirección General de Mejora de la Calidad de la Enseñanza.

The CRIF (Regional Centre for Innovation and Teacher Training), and the CTIFs (Territorial Centres for Innovation and Teacher Training) offer a wide variety to cover individual's and school communities training needs. Throughout the school year CRIF and CTIFs offer general courses for priority training issues, specific courses for methodologies actualization in subject areas, priority courses for the use of technologies and languages, on-line courses, support for individual school communities needs, seminars, in-school projects and innovation, working groups and workshops. There also also training opportunities in Summer for training both in Madrid and abroad.

Special mention should be made to the "Plan de Formación en Lenguas", which has made an enormous effort to help teachers of different educational levels and English language mastery, with more than 5,000 openings. Also agreements with Spanish and International universities and other institutions have been made. All these efforts are necessary, since direct teaching is the key for educational success.

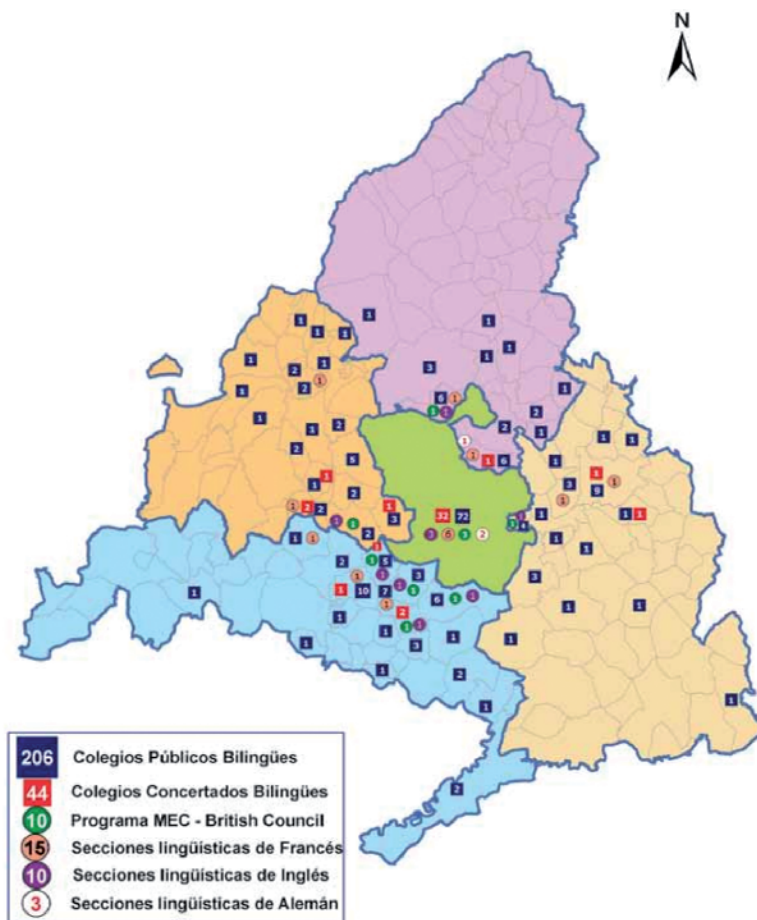
Work in the Field

The final purpose of the above considerations is to accomplish, to put into practice the target of becoming proficient in English: Work in the field.

Teacher training works in all educational levels and communities. I should say that implementing innovations in language learning is a challenging, dynamic, exciting and rewarding experience. Difficulties exist but solutions are to be found. Teachers' engagement and hard work must be recognized and rewarded.

Work in innovative fields joins theories and practices in a real context at a real time. My experiences so far have been very positive and many times surprising; reality matters, needs, difficulties, trials, and findings are always interesting and somehow unexpected.

School communities' commitment to innovation are working fields themselves. They are the purpose of our work, for *actions speak louder than words*.



*) Including the bilingual sections in Secondary Education Schools

Source: Dirección General de Mejora de la Calidad de la Enseñanza. Consejería de Educación

Figure 1. Map of bilingual centres in Madrid, School year 2009-2010

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BRIDGING THE GAP BETWEEN MEASURED AND PERCEIVED PROGRESS IN THE DIGITAL AGE

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ABSTRACT: Technological advances have brought Computer Assisted Language Learning (CALL) into the everyday classroom experience for adult ESL learners. Schools have invested heavily in new technologies and subsequent training and professional development in a bid to grab a competitive edge in the private adult English as a Second language (ESL) market. Publishers, administrators, marketing departments and researchers are intensely interested in the future of ESL delivery, both inside and outside of the classroom. We certainly find ourselves in a period of transition, where the early adopters grapple with a complex mix of ever-changing tools, new opportunities, training challenges and student expectations. As “digital immigrants” plan courses and design -curriculum to exist in the new world of the “digital native”, how much is the ready availability of technology valued by our students? What is the impact of its integration in the classroom? How can we translate CALL technology into meaningful progress for our students? This paper discusses the results of research conducted in the private adult ESL school sector in the USA, Australia and New Zealand, with the aim of shedding some light on the answers to these questions.

Keywords: Computer Assisted Language Learning, English as a Second Language, Information and Communication Technologies, Progress, Technology.

INTRODUCTION

The use of technology in the classroom is quickly becoming a steadfast reality of modern day ESL teaching. Even in classroom environments that are “technology light” teachers and students are bringing digital tools of their own into the mix. This being the case, the impact of technology integration has never been more relevant when considering what we do and why, as ESL teachers. This paper explores the results of research and surveys conducted over the last

year with groups of adult ESL students. Our focus is upon unexpected results as we attempt to move past arguing for the inclusion of technology (it's already here), towards a critical examination of how to best meet the expectations and needs of our students in this new reality.

Measured and Perceived Progress

While there are a myriad of influences on the progress of a particular student, we thought it would be interesting to measure the progress of students learning with differing access to technology in the classroom. The authors expected to see equal or greater progress for students accessing technology more frequently in their lessons, and while this was in fact true, it was in the area of perceived progress that a marked difference became apparent.

The authors followed the progress of fifty-four students in four classes over an eleven-week period. All students were tested and placed into an Intermediate group, or had successfully met the requirements for progression from a Pre-Intermediate level class the previous term. The students were aged between 18 and 36 and their nationalities included Venezuelan, Japanese, Chinese, Korean, Kazakhstani, Vietnamese, Taiwanese, French, and Turkish. They all had at least 12 years of education prior to arrival in the USA. This group of students provides a typical snapshot of adult ESL learners on intensive or semi-intensive courses in countries where English is the primary language spoken.

The four groups were split between two locations; Boston and New York, and followed one of two course types: Smart Express (SMEX), or Diploma of English (DIP). The SMEX classes had access to Interactive Whiteboards (IWBs) and Netbooks in the classroom. While technology was integrated in the classroom, desk chairs and wireless connection made it possible for the teachers to continue delivering the course with a communicative approach; students were seated in a horseshoe pattern, and group/pair work was facilitated by a highly portable and rugged Netbook design. In this sense, the institution has moved CALL into the typical ESL classroom, moving individual computer access away from the more traditional "weekly sessions" in the computer lab. Laptops were managed by the instructor using SMART Sync™ software, which facilitates a high degree of control over their use. By blocking certain sites or the Internet altogether, sending messages to individual students, displaying a student's desktop on the IWB as well as a variety of file sharing and information sharing tools, the

teacher was able to guide and direct the students use of technology in class. In addition, the students used an e-book, as well as various Web 2.0 applications, including Voicethread.com, as part of their course.

The remaining two DIP classes had the same physical layout however they had no access to Netbooks or e-books in the classroom and the teachers were not able to display a digital coursebook on the IWB. Media centers could be accessed, yet Web 2.0 e-learning was not a part of the curriculum.

At the beginning, mid point and end of the course the groups were tested using different versions of the Association of Recognised English Language Schools' (ARELS) placement test (University of Oxford, 1985). Midway and at the end of the course, they were required to complete a survey in which they commented on their perceived progress. This self-evaluation was then compared with the measured results from the tests. Results revealed that students in the SMEX class performed marginally better on the ARELS test (14.5% increase compared to 14.33%), however when asked to rate their own progress, the SMEX students ranked themselves consistently lower (3% increase) than the DIP students (8% increase). Even knowing the results of their tests, the students with greater access to technology seemed to feel less confident they were making significant progress. In addition, both groups were unable to accurately match their actual progress to their perception.

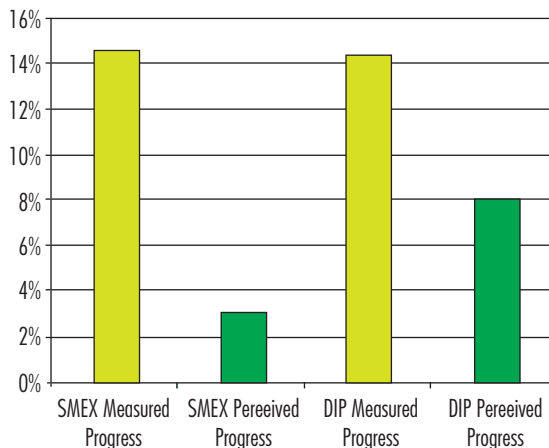


Figure 1. Measured & Perceived Progress.

With the objective of further examining this pessimism amongst SMEX students specifically, the authors followed up with the ex-SMEX students still studying DIP. These students, having experienced both a technology-heavy and technology-light learning environment, had the perspective to reflect on both learning situations. Sixteen of the students were able to complete a questionnaire that asked for comparison of the two classes. Approximately three weeks after finishing the SMEX course, these students did not identify increased progress with increased access to classroom technology; they felt they progressed the same amount in each, however they did indicate that they enjoyed the classes incorporating more technology by an extra 14%.

Enjoying Learning with Technology and Associating it with Actual Progress

Although the research sample is small, and many factors can influence a student's perception of his/her own progress, the authors believe that the results do serve as a reminder that "improvement" should be better communicated to students. This necessity is even more pressing as we incorporate the use of Information and Communications Technologies (ICT) into the classroom. While we are closing the gap between access to ICT inside and outside of the classroom, and students are "enjoying" their classes more, what makes a student truly value what they are doing with technology, and relate it to their progress? We believe that the roots of the answer lie in what we are asking our students to do with technology and how learning objectives are being communicated to them.

For the SMEX students, having access to a Netbook in class was a new way of classroom learning. By leading the students outside of their comfort zone to new experiences, or perhaps familiar experiences in a new environment, the onus is on the student to make the necessary adjustments to their preconceptions of what constitutes classroom learning (Holland, Dede & Onarheim, 2006). Previous learning experience has a profound influence on the assumptions and expectations students have about the use of technology (Orlikowski & Gash 1994 in Orlikowski, 2000), so what is it that we are asking our students to do that is different to more traditional notions of classroom norms?

We suggested above that the SMEX classroom includes familiar use of technology in an unfamiliar context. By accessing Web 2.0 tools in class the traditional teacher role changes from "transmitter" of information to a more

facilitative role. This said, using online resources still requires teachers to have a strong “presence” in the lesson (Fontaine & Chun, 2010). By being fully present in all stages of the process teachers reinforce their place as guide, language facilitator and expert. Teachers need to balance student expectations for teaching, while still achieving their objectives of student-centered learning. As Davis (2006) and Morgan (2008) have rightly argued, setting of objectives must precede Web learning, however even more importantly, learners must understand and value these objectives, to avoid the impression of “technology just for technology’s sake”.

Contributing to this lack of clarity regarding the “why” is the task based nature of lessons using Web 2.0 tools, which often prioritize publication of student production (Mason & Rennie, 2010). In order for students to be comfortable in this performance arena, they must feel well prepared and supported at each stage leading up to posting. Creating and publishing in a public setting also requires a high degree of motivation and student effort, especially if this is a new and unfamiliar process (Fontaine & Chun, 2010). The stakes are high, and while the desire to produce language to a high standard is a motivating factor, it also works against student perceptions of worth if each step leading to Web publishing is not clearly outlined. In a worst-case scenario, creating content for the Web is simply another test to fail for our students, and with so much testing already occurring, they are right to ask about the learning value of using these tools.

Another key to appreciating effective learning in the classroom is regular reflection on the process itself. In recent observations of over 20 ESL teachers teaching young adult mixed nationality groups in the USA at no point *during* the lessons were learners asked to pause and take stock of what they had learnt. Certainly homework tasks or revision activities provide extra practice at a later stage, but the explicit immediate personalized value of activities or tasks is rarely underlined in class. Where student reflection is a mainstay of online asynchronous courses, more emphasis on what language and skills are being acquired during face-to-face instruction would result in higher recognition of the learning value of using technology in the classroom. Enjoyment is essential, and promotes learning, however reflection reveals the values and structure underpinning enjoyment.

Mason and Rennie (2010) suggest, in fact, that lack of an ability to reflect is an emerging characteristic of learners in higher education. Prensky (2001) adds

critical thinking to the list and suggests that that real challenge we face is to teach these skills in a learnable way. We believe that one of the influences on the low scores students attributed to their own progress is this absence of reflection on what they are learning in class. If the objectives and rewards for using technology in class are not clear to students, then the link between effective classroom practice (in the form of progress) and access to technology isn't either.

What do Our “Digital Native” Students Really think about all of this Technology Business?

Lui (2009) points to the scarcity of studies that center on learner attitudes towards the integration of ICT into learning. This is unfortunate given the effect that attitudes have on learning. Our findings regarding student perceptions of progress point towards a need for change in the way ICT is viewed by learners. In a survey of 1206 ESL students in the USA, AUS, NZ and the UK 93.3% said they liked technology in the classroom, however in another recent survey of 898 ESL students in the USA, only 38% of students said that they would be prepared to bring their own laptop to school to study. This statistic serves to highlight possible ambivalence of students towards using a laptop in class, and may be a reflection of the current mentality dividing what purpose technology serves outside of the classroom, and the role it plays (and who provides it) in class. It is worth noting here that students who have to deal with a large informational intake usually view a personal laptop as an indispensable note taking tool, whereas a need for a laptop in the modern ESL classroom has to be established for other reasons. In a face-to-face communicative classroom it's unlikely that laptops would be used constantly. Just as the use of electronic dictionaries has been integrated and managed by teachers keen to discourage the electronic understanding “crutch”, so to is laptop use to be an element, but not a dominating mode of interaction, in the classroom. As e-books make their way into our lives, so to may laptops or e-book readers become a daily essential. However, until choice is possible, and the early adopters pave the way, uptake is difficult to predict. As Gaver (1991) suggested, until it is clear for students what technology “affords” them in the classroom, a connection between potential and reality is unlikely.

Historically, the technological transition from entertainment to education has by no means been a smooth one (Mason & Rennie, 2010). As Prensky stated

(2001) attempts at combining education and entertainment; “edutainment”, have been largely unsuccessful. The use of movies in the ESL class is a good illustration of this. A common student complaint is that “our teacher just shows movies all the time”. Now this can be an indication of lazy teaching, but in some cases it simply indicates a breakdown in effective communication of learning objectives.

It seems that in trying to harness the enthusiasm and interest in technology, and its use for communication, teachers must also be careful not to “ruin all the fun in it” by bringing it into the classroom. Whilst dealing with this idea of (mis-) use it is interesting to note that if social media tools like Ning or Twitter are primarily used for publishing in the classroom, their primary use for students at home is participation and socializing (Mason & Rennie, 2010). It is then simplistic to assume that widespread recreational use of technology will result in its quick integration and trouble-free implementation in the classroom (Cuban, 2001). As boundaries are being blurred between what is used for recreation and what is used for study, teachers are facing an increased requirement to clearly define what role and what use technology has in the classroom.

“Use” is also a key focus point for the teacher interested in students and what they do. Actual use of technology in the classroom reveals its true worth as a learning tool. The age-old adage of theory and practice reveals often-surprising information when placed side by side. Orlikowski (2000) emphasizes a “practice lens” to evaluate the effectiveness of classroom technology. In this sense actual “use” aids in identifying ways into what motivates our students, what they need and what they need help to discover. It may be that unintended use of technology in class is resulting in learning, and encouragement and further exploitation of this can help connect what students like to do with their progress. An example of this is student instant messaging in class; taking this proclivity to chat during a lesson, subsequent exploitation of “chat” functions in the learning software have proved very popular with teachers and students alike.

CONCLUSION

In 2001, when Prensky made a division between digital natives and digital immigrants, he highlighted a gap of experience between teachers and students in order to promote new methods of teaching. Today, teachers are better integrating the digital natives’ reality into their classrooms, giving rise to new considerations about what is effective practice and how these values are

communicated to our learners. As teachers we need to help our students explicitly connect how much they are learning to what they are doing, while still exploiting technology in the classroom, pushing boundaries and challenging preconceptions. Clear understanding of objectives on both sides, combined with regular reflection on learning, will align student and teacher expectations regarding progress, both measured and perceived.

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HAVE COMPUTERS EVER REALLY ASSISTED LANGUAGE LEARNING? PROBLEMS AND PROSPECTS

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ABSTRACT: Early Computer Assisted Language Learning programs reflected the structural/behavioral view of language. This computer-based language instruction was characterized by the use of software that was prescriptive by nature. As developments in computer hardware and software were made, it appeared that AI might offer a way to give CALL software the ability to analyze student linguistic production. This line of research became ICALL, which explores the application of AI to the problem of language learning. While AI techniques looked promising, the results are still limited. Since progress in the area was slow questions were raised about whether ICALL systems could actually keep the promise. However, continued research and advances in the field of AI have made it popular once again. The ATLAS research group have developed a series of systems as part of an “iterative design process” that has helped to refine and test the theoretical ideas underlying a professional English learning framework. In their current project, I-AGENT, the decision was made not to develop an e-Learning platform in itself (as has been done in previous projects), but to focus on student modelling and reasoning for second language learning. The resulting I-AGENT system connects to Moodle to adapt study materials and activities to a student’s needs and progress.

Keywords: ICALL, Moodle, ESP, face-to-face instruction.

Early CALL (Computer Assisted Language Learning) programs developed during the 1960s and 1970s for mainframes reflected the structural/behavioral view of language, and it can be seen that with their arrival, the control of the learning process passed largely from the teacher’s hands to those of the computer

programmer. This computer-based language instruction was characterized by the use of software that was prescriptive by nature and relied heavily on the drill-and-practice of material associated with immediate feedback on the students' actions to teach lexical and sentential content without any further context. This was a time of passive knowledge learning (no reasoning or judgment was stimulated), although it could also be argued that automated learning was somewhat less passive than the traditional print-based counterpart, since it allowed students to self-pace their movement through established lesson programs. Research confirms that learners benefited to some extent from the technology when the learning objectives were behavioural: “[programmed instruction] opened up new possibilities for individualizing instruction, for teaching diagnostically, and for providing a real school situation for the scientific study of learning” (Saettler, 1990). The proliferation of smaller, cheaper microcomputers in the 1980s facilitated general access to computers and hence experimentation with language learning software increased. The actual term Computer Assisted Language Learning and its acronym CALL were coined at the 1983 TESOL convention. As time went on, many different types of CALL programs were written: gap-filling exercises, multiple-choice exercises, free-format exercises, re-ordering exercises, adventures, simulations, action mazes, games, text manipulation (total cloze), exploratory programs, word processing, etc., (Davies, 2007) all still instructional by nature.

As developments in computer hardware and software were made, it appeared that AI might offer a way to give CALL software the ability to analyze student linguistic production and undertake automatic generation of language in a way that was not possible until then (Hart, 1981; Underwood, 1984; Last, 1989). Although the term *Artificial Intelligence* was coined in 1956 (by one of the fathers, to be, of the discipline, J. McCarthy), to refer to the science and engineering of making “intelligent machines” (the first computer program that undertook NLP “intelligently” was called ELIZA, a question-answering therapist emulator; Weizenbaum, 1966), the first seminal work on the application of AI to CALL didn't appear until the early 1990s (Swartz & Yazdani, 1992; Chanier, 1994; Holland et al., 1995). This line of research became ICALL (or CALI-AI; Computer Assisted Language Instruction incorporating AI techniques; Bailin, 1988). This is a discipline that explores the application of AI to the problem of language learning. It started due to the limitations of standard frame-based CALL programs (where the materials are organised into frames which are sequentially presented to the students; Dicheva & Dimitrova, 1998), and when certain AI

techniques became sufficiently stable to include in CALL systems. Gamper & Knapp (2002) note that over the years ICALL systems have been produced for more than fourteen languages including English, Japanese, French, German, Spanish, Italian, Russian, Greek, Mandarin Chinese, Arabic, Hebrew, Thai and Malai, containing techniques such as:

- **Expert systems**, which incorporate knowledge about typical mistakes, learning strategies, questions, answers, etc., to analyse student interaction with the system.
- **Intelligent tutoring systems**, which combine an expert system of domain knowledge with a module representing what the learner knows about the domain, and a tutor module containing learning strategies.
- **User modelling and adaptive systems**, which record a user's steps and mistakes and adapt the content accordingly.
- **Natural language processing (NLP) and generation**, which allow the system to analyse open student linguistic production and generate responses and exercises.
- **Automatic speech recognition**, which allows the system to analyse student spoken production.
- **Machine translation**, which allows the system to compare the automatic translation of texts with the translations produced by the student.

While AI techniques look promising, the results are still limited. Specifically, expert systems and intelligent tutoring systems are not generally applicable because of the difficulty and cost of producing detailed domain and student models (Bull, 1994). User modelling and adaptive systems have similar problems. NLP systems have great difficulty analysing what a student is producing, beyond the basic syntactic structure, mainly because of the computational intractability of the semantic and pragmatic components (Garrudo Carabias, 2005). If the target language that a student wants to learn is a sublanguage, then the restricted nature of the domain, vocabulary, typical errors that can be committed, make such analysis a lot more feasible; however, the majority of English language learning is general purpose. The NLP problems are made harder if the student input is oral. Automatic speech recognition works well for native speakers who have trained the system previously, but non-native speakers with very different accents give many more problems. Finally, machine translation can produce a translation which is sufficiently good to enable someone to gain a gist of the original content

(particularly if it is a specialised text and the reader has expert knowledge). However, the quality of the translations are nowhere near good enough for didactic purposes.

Since progress in the area was therefore slow, debate followed in the literature regarding whether ICALL systems could actually keep the promise, and many researchers presented strong cases against it (e.g. Bowerman, 1990; Bailen, 1995; Garret, 1995; Barr et al., 2005). However, continued research and advances in the field of AI (and its relation to other areas like Cognitive Science) have made the discipline of ICALL popular once again. In the last ten years some progress has been made with systems like GEROLINE (Heift & Schulze, 2003) and GRACILE (Ayala & Yano, 1996), both of which are collaborative. The former focuses on collaboration based upon the interchange of learning objects between students and an instructor, and evaluation is undertaken using automated tests. The latter, GRACILE, designed to enable students to practice only written language, is an agent-based system which assigns an agent to each student that stores a set of beliefs as a schema for the learner model. This model represents collaborative processes, and not cognitive ones. Here, the role of the agent is to enhance awareness and effective collaboration between students with groups that are predefined in advance. Other systems, such as COMET (Suebunakarn & Haddawy, 2006) and COMTELLA (Cheng & Vassileva, 2006), also combine individual and collaborative modelling. The former for medical diagnosis and the latter in the context of a peer-to-peer online community for sharing resources.

Regarding student modelling, systems such as CASTLE (Murphy & McTear, 1997), WEBPVT (Virvou & Tsiriga, 2001) and ICICLE (Michaud et Al., 2001) use models based upon stereotypes. CASTLE uses a simple user model where the stereotype is used to classify students in terms of their knowledge level. WEBPVT uses a multidimensional stereotype-based approach to represent a student's knowledge level. Finally, ICICLE uses a student model that captures the stereotypical stages of English language learning and the status of the grammatical constructions. Student progress is detected and the stereotypes are used to classify the student dynamically. Bayesian diagnosis is used in CAPIT (Mayo & Mitrovic, 2001), where the language learning model takes the form of a data-centred network (i.e., the values used in the network are learnt from domain data processed by the network).

Finally, a series of systems (I-PETER I [Intelligent Personalised English Tutoring EnviRonment], Bárcena & Read, 2003; I-PETER II, Bárcena & Alba,

2006; and COPPER [Collaborative Oral and written language adaptive Production EnviRonment], Read et al., 2006) have been developed as part of an “iterative design process” that has helped to refine and test the theoretical ideas underlying a professional English learning framework. I-PETER I represented an advance in the area of distance English learning and CALL, where students had problems receiving materials and assistance according to their needs and progress due to the large number of students typically present in such courses. Its student linguistic knowledge model was richer than in other systems: a student’s command of English was evaluated by interpreting his performance in specific linguistic areas in terms of related criteria, rather than by a vague general linguistic knowledge ranking. This model enabled error diagnosis to be carried out using Bayesian networks, to reflect how English teachers actually undertake this type of process in the classroom. The results of this diagnosis process enabled a finer-grained control of material selection than is normally possible, giving rise to a course structure that was continuously adapted to individual student needs. The intention of the research behind I-PETER II was to extend I-PETER I to produce a fully functional production system (i.e., robust, with contextual help and documentation, etc.), adopt a cognitive constructivist learning paradigm (e.g. using scaffolding and authentic contextualized tasks), adapt the CEFR to the representation of professional English (at the first three levels [A1, A2 and B1]) in the domain knowledge models, and as a direct result, refine the three dimensional (henceforth, 3D) student model and the Bayesian diagnostic model. COPPER integrated I-PETER II into a combined individual and collaborative learning system, which complements the cognitive constructivist paradigm to learning with the social constructivist one. This hybrid approach now permits the development of communicative language competences as defined in the CEFR. Specifically, COPPER permits student language production and interaction to be undertaken as a fundamental part of language learning.

Despite the wide range of CALL applications described above, it is a fact that second language instructors have traditionally been reluctant to incorporate those applications into their teaching methodology. One reason stands out: the fear of using technology (see, e.g. Wan, Supyan & Norizan 2007). Many instructors are put off by the prospect of using software applications that may prove to be too difficult or that, simply, may require a time investment beyond the instructor’s availability or inclination. Training instructors in the correct use of technology and to understand how that technology could help them improve their teaching in a painless way is considered key to the success of CALL. However, this

training requires an initial investment of time and money that often proves insurmountable. This brings us to an additional problem that has added to the slow progress of CALL: cost (Lee, 2000). Developing CALL applications can be rather expensive, and, from the point of view of teaching institutions, the incorporation of the software and the technological equipment necessary for the exploitation of such applications usually requires a significant investment; all of this on top of the above-mentioned outlay in instructors' training.

CALL applications should not only be easy to use and relatively inexpensive but should also not require a drastic change in the role of learners and instructors. I.e., ideally, (I)CALL applications should adapt themselves to their users rather than the other way around, as both learners and instructors fear the change of roles imposed by most CALL-based methods. Additionally, regarding computer supported collaborative learning in particular, special emphasis must be made on the clear setting of tasks so as to avoid misunderstandings that may eventually hamper, as is often the case, the successful completion of activities by learners (see Yoshitaka Sakurai et al. 2009 for a discussion of this problem).

That is why, in the current project undertaken by ATLAS research group, I-AGENT, the decision was made at the very start not to develop an e-Learning platform in itself (as has been done in previous projects), which is necessary for student and content management, but not really as part of the actual project research, which should focus on student modelling and reasoning for second language learning. Hence, the usability problems of designing the online working environment have already been solved during the development and use of the e-Learning platform and do not need to be tackled again. Furthermore, if we ideally are using a platform that is well known in the e-Learning community, there is a good chance that some students will have used it before so not have to learn it from scratch.

Initially, LAMS (Learning Activity Management System; Dalziel, 2003) was selected as the platform, for several reasons, including:

1. Because of its design and collaborative learning activities, it provides teachers with a visual authoring environment for creating sequences.
2. Because it is easy to use and allows teachers to reflect on their own teaching activities.
3. It has been shown that there is a greater degree of integration of students. Students are more willing to participate and discuss ideas through LAMS than in an open classroom.

4. It is the appropriate tool for the students profile we want to aim this research: adults who work or will work in a business environment and with interest in learning Business English.
5. LAMS can be integrated with other Virtual Learning environments such as Moodle, Sakai, WebCT, etc.

LAMS is inspired by the concept and principles of IMS Learning Design. The IMS Learning Design supports the use of a wide range of pedagogies in online learning providing a generic and flexible language. LAMS activities can include a range of individual tasks, small group work and whole class activity based on both content and collaboration. Each activity has a number of own specific common features. They include communication and collaboration tools, tools designed to deliver and share resources, and tools to assess and evaluate contributions of students. However, as the project advanced, it became apparent that it would not be possible to directly tie LAMS and I-AGENT together due to the distributed nature of the way in which LAMS manages its tools and the way in which overall student results are handled and stored in the system. Subsequently work moved the emphasis to using LAMS as a module from within Moodle (Dougiamas y Taylor, 2003). Moodle is one of the best established e-Learning platforms around at the moment, and while its PHP-based architecture can give rise to problems of scalability for very large student numbers, it offers (in its newer 2.0 version) an ideal e-Learning platform for this project since access to the overall student progress and results is a lot more feasible than from LAMS. Since LAMS exists as a module for Moodle, the benefits it offers are still available. Furthermore, the latter also contains many different types of learning activity types than can be used above and beyond what the former offers.

Furthermore, what makes I-AGENT a more practical and feasible ICALL system (for real instructors to use) is the way in which it integrates collaborative online work via Moodle and face-to-face classroom lessons. These lessons complement, reinforce and help the teacher to check the students' work performed online. Such a blended learning approach allows students to really profit from the individual and collaborative possibilities offered by Moodle, and it provides them with the support of a real teacher who can help them monitor, supplement and safeguard the benefits of the tasks undertaken on the e-Learning platform. The teacher, in this context, can also correct the results of open production exercises undertaken by the students that would be beyond what can be currently corrected by an ICALL program.

As part of this project, the ATLAS Research Group is developing an entire ESP course combining Moodle and face-to-face lessons at the moment. This course (for A2 English level students, following the CEFR—Council of Europe, 2001), is designed to last 125 hours (four months or an entire semester), which is equivalent to five European university credits. The course is made up of nine lessons that consist of one set of tasks to be performed online and four face-to-face classes for each lesson. Each lesson has the same basic structure:

- The student starts working in Moodle, first with a warm-up section, that makes use of Internet-based resources, followed by a listening comprehension task (with an audio text and closed questions) and a vocabulary activity.
- After this, Moodle does not let the learners advance until they have attended the first face-to-face class, that provides a review and expansion of the work performed online; it should be noted that the teacher can access online resources to guide these classes, as well as to monitor the work done by each student on Moodle.
- Next, the learner continues working with the online sequence from home, with a (systemic functional) grammar section with practical theory and functional tasks, at the end of which the tasks are once again paused.
- The subsequent face-to-face class concentrates on reinforcing the grammar points practiced in Moodle, through realistic examples, questions and answers, games, and role-playing activities.
- The following online tasks explore aspects of the foreign culture related to the topics that have appeared previously in the sequence.
- The subsequent class focuses on reviewing everything contained in the online tasks up to this point through practical examples, peer review, problem solving activities, etc.
- The final section of each Moodle sequence presents learners with a collaborative project related to the contents of the lesson to be performed online in small groups.
- The last class offers students the opportunity to present their collaborative projects in groups and to carry out a peer review and a self-evaluation.

However, it should be noted that while each lesson has a set structure, that does not mean that all students will follow that structure in the same way. An

important part of the I-AGENT project is the adaptive nature of the system, i.e., each student will be presented the resources and activities in an order depending on the way in which s/he has undertaken the work to date. As errors are committed then a cognitive scaffolding mechanism adapts the presentation of the materials to include additional work as required.

In this article the way in which (I)CALL has been developed since the early 1960s has been presented, focusing on how it has supported language learning during this time. A combination of factors have been identified as limiting the incorporation of CALL systems into mainstream language teaching/learning, the most significant of which being the cost and difficulty of developing such systems and the resistance of instructors when faced with using computer software. The ATLAS research group, when putting together the I-AGENT project, were aware of these limitations and it is hoped that the eventual ICALL system that emerges, building on an established e-Learning platform, will take a significant step toward solving these problems and become a tool that can be used in a broad language learning context.

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MMOL PLATFORMS: OPEN 3D LEARNING TECHNOLOGIES IN EDUCATIONAL PRACTICES

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ABSTRACT: This paper shows the 3D learning “state of the art”. 3D learning is a new approach to understand distance learning, as well as a possibility to introduce blended learning in order to enable all members of educational communities, particularly for digital natives, the possibility to explore virtual worlds, such as Open Wonderland, OpenSim, serious 3D games and other software, with clear educational purposes. 3D learning should be adapted to the current educational demands, and the outputs of that new educational strategy is called MMOL Platform. MMOL is the acronym of Massively Multi-user Online learning, in allusion to the origins of these first platforms: MUDs (Multi-User Dimensions/Dungeons) or MOODs (MUD object oriented). The psycho-pedagogical foundations of this new paradigm lie on socio-constructivism, active learning (learning by doing), learned generated contexts, and especially on George Siemens connectivism theory. Furthermore, MMOL platforms need the application of new technological solutions in order to obtain the appropriate throughput of applications that demands a high performance computing. The use of grid computing clusters servers, cloud computing, SaS (Software as Service) and distributed systems should become available for the general public.

Keywords: MMOL Platforms, 3D learning, connectivism, virtual worlds, augmented reality, mixed reality, mirror worlds, web 3D, e-learning.

INTRODUCTION

The appearance of metaverses is a novel phenomenon in the modern culture. 3D learning environments, unlike the traditional 2D environments, provide students with the possibility to explore worlds and realistic stages with a clear educative purpose, and serve as support for the effective development of skills by simulating situations, events, problems... For example the training abilities in

medicine, markets and stocks, chemistry. The movement that tries to approximate the 3D technology to education receives the name of MMOL (Massively Multi-user Online Learning).

Some authors anticipate that in a short period a lot of companies will use the 3D worlds. This circumstance is a stimulus for the “digital era” fellows. These “digital native” called “Millenials” (Oblinger & Oblinger, 2005) or “digital natives”, (Prensky, 2001) or “Y-ers” or “Y Generation” (Krause et al., 2005) or “Net Generation” (Tapscott et al., 1998) or “Homo Zappiens” (Veen, 2004). These young learners are who demand these highly interactive environments. The European students could form a part of this group. As we write we do not have studies that quantify the percentage of those students with abilities in the 3D tools. Experience shows that young people enter in these worlds like a part of their informal initiatory learning. However the educative system is not facilitating teachings for an adequate use of these technologies. This document will present a comprehensive study of how to approximate the 3D worlds to the education system. The 3D worlds can bring solutions to an educative system with problems. Educational institutions may help future students improve their “immersion” into the education system through 3D technology.

MMOL PLATFORM DEFINITION

The MMOL platforms are mixed environments that bring an interactive learning space with the use of 3D technologies - 3D graphics, serious games, virtual reality, realistic simulations, mirror worlds, augmented reality - synchronous communication tools - live chat -, web cams and rich digital media to build collaborative online course environments and classrooms in which individuals participate in a real or figurative presence (avatar). The MMOL platforms provide educators and students with the ability to connect and communicate in a way that greatly enhances the learning experience.

THE CASE FOR MMOL PLATFORMS

There is no denying that students, especially those at the K-12 level, are energized and engaged by using computers at school. A well designed immersive

education application with the same level of high-resolution graphics featured in the latest video games would seem to be an obvious boon to educators. Through such an environment— a learning game that resembles those students play at home with (though minus the occasional violence and sex)—schools may be able to reach pupils they have not been able to before. That goes for students with special needs as well. A child who cannot walk or run freely, for example, can do so in a virtual world. The benefits of the technology seem obvious in these cases.

Some experts, however, believe that kids' affinity for video games is no reason to give them more of the same at school. It all depends on how you use it. Students now want to play more of a role in their education. This technology is what they have grown up with, and how they think they learn better. The MMOL platforms do not lend themselves to every academic discipline. For this reason, it is necessary to establish the convenience of using these technologies in a multidisciplinary environment.

For example, a teacher can develop a language/cultural curriculum for virtual visits to different places. Such an application might have a student avatar arriving at the airport of this place, where his guide is. All this can take place in English, Spanish, or a mixture of both languages, depending on the student's level and need. But this experience also is designed to prepare a person for an upcoming visit to another country, give them a general sense of the language and/or culture there, or even provide a virtual visit for a student who cannot afford to go abroad. In other contexts the teacher can use the same experience to teach Art, Literature, Geography or any relationships between them.

THE MMOL PLATFORM COMPONENTS. A PROPOSAL FOR A MIXED REALITY ENVIRONMENT

A generic representation of the underlying architecture in a MMOL platform is displayed in the next figure.

The user agents are client applications that allow interaction and integration of students in the MMOL Platform. It is necessary to deploy services and servers that verify the user's virtual personality.

The regions, islands or cells are each of the educational geographic areas in which virtual space is divided, and whose division may correspond to various criteria. A space or virtual universe is a collection of "cells" that represents a 3D

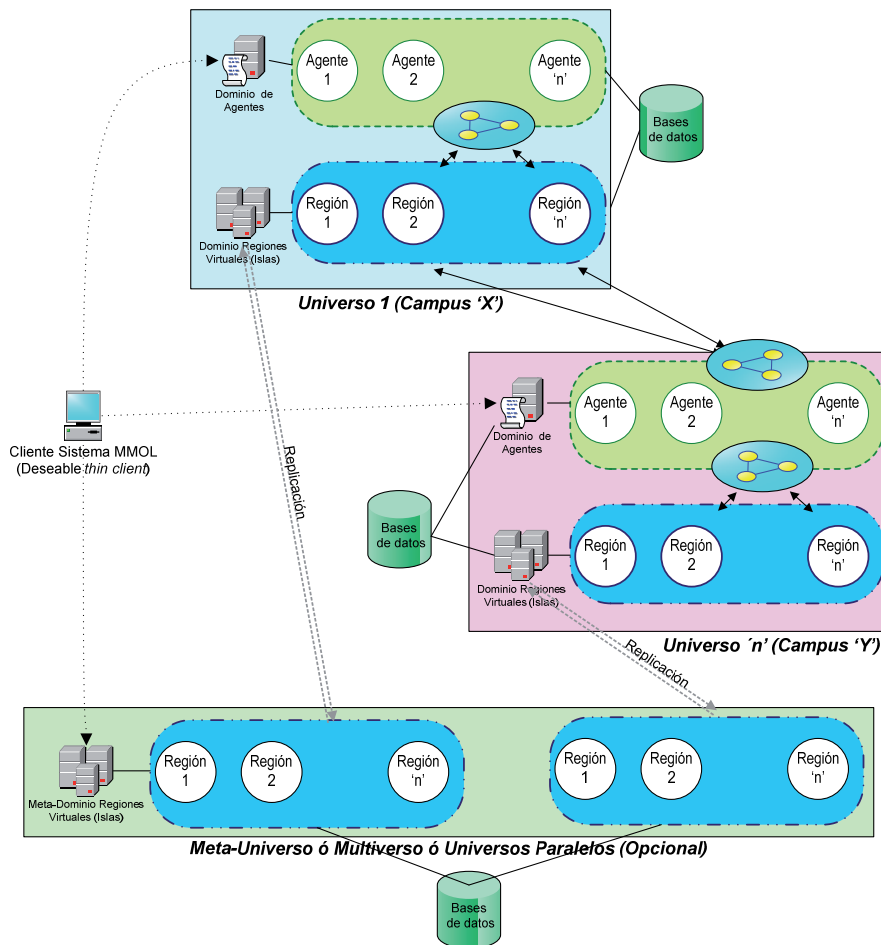


Figure 1. MMOL Platforms Architecture

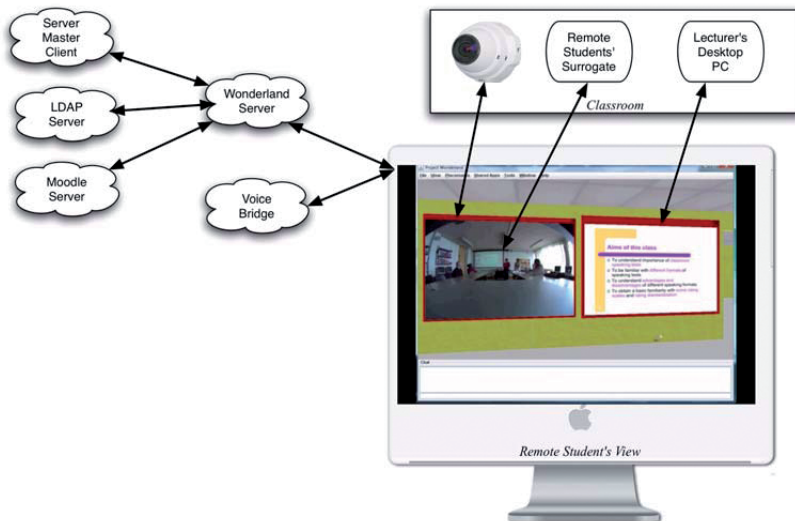
volume in the world and includes a 3D learning object or MOL (Minimum Object of 3D Learning). A space has a simple Cartesian coordinate system. This coordinate system is the commonly used by 3D technologies.

From the teacher's point of view, hardware resources are needed in the "physical" classroom so as to enable the integration of teachers, students, experts ... with a real presence in the virtual training space. A generic configuration is the next:

- Axis network camera to provide live video of lecture in the virtual lecture room.

- Microphone to enable remote students to hear the tutor and collocated students in the physical lecture room.
- Speakers to enable tutor and collocated students in physical lecture room to hear remote students.
- Desktop/laptop (for slide display) positioned at the front of the lecture room.
- Data projector/LCD panel/plasma panel (for slide display).
- Desktop/laptop to provide the tutor and collocated students with a view of remote students.
- Large plasma panel or similar device to provide tutor and collocated students with a view of remote students, connected to the above equipment.

The figure below shows how to make the integration of all these elements in the MMOL system architecture from the perspective of “virtual student.”



MIRTLE Project. (http://chimera69.essex.ac.uk/Mixed_Reality_Teaching_and_Learning_Environment)

Figure 2. Virtual Student view.

The next illustration shows how the students of “real classroom” watch the virtual space.



MIRTLE Project; (http://chimera69.essex.ac.uk/Mixed_Reality_Teaching_and_Learning_Environment)

Figure 3. A virtual space view.

STEPS TO USE THE MMOL PLATFORMS IN A REAL EDUCATIVE CONTEXT

1. Start by small works that require not much technology.
2. Know and master the virtual environment.
3. Define the virtual space to develop academic activities.
4. Participate in online communities of educators and students who are already working with these tools.
5. Disseminate the experiences.
6. Listen to and engage the students and teachers that work with these technologies. The feed-back is essential.
7. Don't use the existing educational models. 3D learning is a new paradigm with a new educational model.
8. Plan the activities accordingly with the student's interest and educational objectives. A guideline to develop the plan is the "Four-dimensional framework" by Sara de Freitas (Freitas, 2008a).

CONCLUSIONS

The MMOL platforms will produce new challenges such as: the need for open standards for the integration of platforms, content and avatars, the validation of resources and new assessment forms.

In the educational context the main challenges are:

- Friendly and not complex tools for micro-3D learning objects development, MOL (Minimum Object of 3D Learning).
- New standards that allow the definition, classification, valuation, packaging and recycling of the MOLs.

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ADVENTURE GAMES AND LANGUAGE LEARNING

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ABSTRACT: Educational video games, or teaching games, can help in language learning by increasing student motivation or by allowing contextualized learning. However, game development is a costly and complex activity with many open issues. In this paper we present a method that allows for rapid game prototyping, thus reducing the risks implied in development. The method is based on the reuse of common structures particular to the field of language learning (e.g. multiple-choice questions) and takes advantage of the combination of different e-learning platforms. We present a case study of the application of this method for the creation of a language learning adventure game.

Keywords: Computer Assisted Language Learning, Game-Based Learning, eAdventure, LAMS, Visual language.

INTRODUCTION

How to use computers as language learning tools (a.k.a. Computer-Assisted Language Learning, CALL) has been widely discussed in the literature (Levy, 1997; Muyskens, 1997). The specific uses made of the computer vary, ranging from being used to prepare texts for class or to show multimedia contents in the classroom (Fotos, 1996), to being used in networks as collaborative environments (M. Warschauer & Kern, 2000). Meanwhile, the potential for serious games as complement to traditional educational methods has been established (Blunt, 2009), as studied by the Game Based Learning (GBL) field. Therefore, language education or language teaching games appear as a result of the combination of both approaches (Warschauer & Healey, 1998).

GBL studies have shown that different game genres can achieve different educational results. In this respect, adventure games and simulations have been identified as a good medium to achieve educational objectives in language

learning (Ang & Zaphiris, 2006; Baltra, 1990; Crookall & Oxford, 1990). Adventure games are characterized by their highly narrative nature (Crookall, 2007), allowing the creation of flow (Chen, 2007) through the use of intrinsic motivation (Gee, 2003). Narrative or story-based games can both help engage students (de Freitas & Jarvis, 2007; Malone, 1981) and to provide a suitable framework for educational content that fosters learning by doing (Aldrich, 2005). These games usually pose an increasing difficulty, allowing the player to slowly understand the game logic and internal assumptions. Games can foster reading, listening, writing and speaking skills (Lee, 1979). Furthermore, adventure games can be used for role-play (Kirriemur & McFarlane, 2004) where the students can experience real life situations in a specific language (a.k.a. contextual learning).

This paper shows a method that allows for educators to develop game prototypes that can be used for validation and then as a framework for the finished product. This way educators can evaluate the game's educational potential and effectiveness before investing all the effort and resources needed for a full game developing, thus reducing risk. This approach takes advantage of pre-existing learning tools to achieve its goal. On the one hand, the <e-Adventure> platform, including its latest tools, allows for easy game development and integration with Learning Management Systems (LMS). On the other hand, Learning Activity Management System (LAMS) allows for the creation of learning activity sequences, as well as game deployment and integration and user information collection, in order to test games in real educational settings.

The paper is structured as follows. In Section 2 we analyze the issues that can hinder the development of educational games. In Section 3 we present a method for rapid language game development using the <e-Adventure> platform and LAMS. This paper shows how this can be used in language learning in Section 4 by means of a use case. Finally, in Section 5 we present some conclusions and future lines of work.

CHALLENGES OF LANGUAGE LEARNING GAME DEVELOPMENT

Professional game development is beyond the possibilities of most educational settings due to budget and technical restrictions. This issue can be highly reduced to affordable levels by means of game development tools (Torrente, Moreno-

Ger, Fernández-Manjón, & Sierra, 2008). However, even using these tools still presents relevant costs, especially in the time the educator must spend creating the game and the creation of graphic resources. Because of these costs, game development can become a risky activity when performed under tight budget constraints.

Besides, general-purpose game development tools usually lack some elements required by educational games such as assessment and adaptation mechanism (Moreno-Ger, Burgos, Sierra, & Fernández-Manjón, 2008). Even though this problem can be partially addressed by the use of educational specific game development tools, the syntax used can be beyond the skill level of an educator trying to assess the educational potential of the game. This implies a high risk of losing the game's educational value and the desired objectives by limiting the roll of educational experts during the development process (Torrente, Moreno-Ger, Fernández-Manjón, et al., 2008).

Moreover, both general-purpose and education-specific game development tools do not provide out-of-the-box tools to address recurring structures and elements in language games. Such shared elements, for example multiple-choice questions, can provide additional benefits for a creation tool tailored for a specific field. However, if these elements are not provided by default and must be explicitly constructed each time the complexity of the system is increased, thus reducing maintainability and increasing development risks.

In addition, multimedia resource creation is an open issue, which can hardly be addressed by game development platforms. This task implies significant economic costs and is time consuming. However, many systems require such resources to be created along with the game, creating a bottleneck and increasing development costs before the game can be validated.

Finally, traditional video games are more difficult to use in learning environments for several reasons (e.g. delivery problems, the need of top tier computers or installation requirements). This problem, however, can be reduced by integrating games in LMS (Moreno-Ger, Burgos, & Torrente, 2009). Furthermore, there is no clear way to integrate video games in LMS and connect the data extracted from this kind of contents with the rest of learning tools in a session (del Blanco, Torrente, Moreno-Ger, & Fernández-Manjón, 2010).

RAPID GAME DEVELOPMENT

Different costs can be identified in the game development process: asset generation, programming, adding educational features and connecting games with the rest of contents in a lesson. In this section we introduce a rapid prototyping mechanism that helps to decrease the risks involved in adventure game development. This is achieved through the use of simple assets and pre-defined elements that allow for the fast definition of games for language learning.

The eAdventure Educational Platform

The eAdventure educational game platform was developed by the e-UCM learning group of Complutense University at Madrid. This game development platform was created specifically for educational games and includes an easy-to-use editor as well as specific educational features such as adaptation and assessment tasks (Moreno-Ger, et al., 2008) and integration with LMS (Moreno-Ger, et al., 2009). This platform is in permanent evolution, and a new system for graphic story-flow definition named WEEV (Writing Environment for Educational Videogames) was introduced to simplify game authoring.

Developing the Story-Flow

WEEV provides a graphic environment where the user can create a visual representation of the story-flow of the game. This story-flow can include educational components (e.g. evaluation) as well as game elements (e.g. conversations). Besides, WEEV includes tools created specifically to suit the needs of different fields. In particular, a multiple-choice component was included to suit language-teaching needs.

The stories that can be developed in this matter can provide a context to the questions (e.g. a travel story to teach travel-related expressions) or just provide additional motivation (e.g. a detective story where the different language-related concepts are included). These stories, in contrast with the ones created on paper, can be directly play-tested by educators and by student groups (Figure 1).

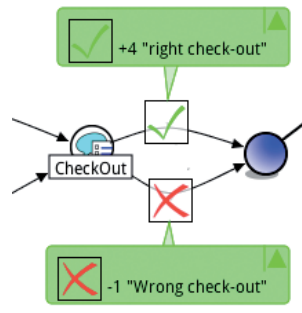


Figure 1. A simple component allows the direct definition of a multiple-choice question; in this case the story progresses even when the student gives the wrong answer and provides the feedback at the end.

Validating the Game

As the stories developed with the WEEV tool can be directly converted into playable <e-Adventure> games, they can be directly validated by the educator and potential users. To achieve that in a fast way the resources used are made in paper and later scanned. Besides, taking into account the visual language used in WEEV and its simplicity, educators can perform a first validation of the WEEV story-board before generating the game. These ideas allow for the reduction of the risk involved in the development of games, as the most expensive parts of the process are off-put until after the general story/evaluation mechanism is validated.

After the initial teacher's revision, the validation with students can be preformed in a classroom setting or, taking advantage of features readily available on the <e-Adventure> platform, though the internet using a LMS. Besides, the introduction of prototype games in LMS is also important to test how the game is connected with other activities in the lesson checking the relationship between all the learning tools.

Integrating with Learning Management Systems

The games developed using <e-Adventure> game authoring platform can be exported as Learning Objects (LO) following different e-learning standards and specifications that allow for the introduction of the same game in many different LMS such as *Moodle*, *Sakai*, *Blackboard*, etc. Some of these e-learning

specifications, such as SCORM (ADL, 2006), can be used to connect the game with the LMS in order to send evaluation information and gather other data about the user profile. Such information can be used to modify the game-flow accordingly (Torrente, Moreno-Ger, & Fernández-Manjón, 2008).

In <e-Adventure> the games also can be exported for specific LMS integration and communication. Using a combination of LAMS (Dalziel, 2003) and <e-Adventure> (del Blanco et al., (In press)), games can be easily integrated into the learning design of a course. This easiness allows the validation of games within a LMS, providing flexible tools to replace the game once the complete version is developed or remove the game if it fails its validation.

From the Prototype to a Final Game

Games created with <e-Adventure> allow for the easy edition of graphic resources and other associated properties (e.g. positions). Using this characteristic, images and sounds used in the prototype can be gradually replaced by ones with the quality required by the final game. The final version of the game can also be extended with other media such as videos and slides, as well as animations. In the same way, new situations and questions can be gradually added to the game until the desired length and complexity is reached.

Once the final version of the game is generated, the <e-Adventure>-LAMS integration tool allows for the game to be easily replaced in the LAMS learning sequence. Thus, the latest version of the game will be provided to the students enrolled in the pertinent courses.

USE CASE

To showcase the process followed in the development of a game prototype, we present a small, yet representative, use case. This use case shows the creation of a game to teach basic expressions and language concepts. The first part of the process consisted of identifying the subject matter and target audience, a problem common to the development of any educational content (De Freitas & Jarvis, 2007). For this case, we chose to create a game that teaches recurring English expressions used in travel (e.g. hotel check-in, flight check-in, etc.) to high school students. The age range is particularly interesting, as it establishes the kinds

of stories that are suitable. In this case, the age range allows a serious story and graphic appearance.

The following step in the development is to identify a set of challenges. One usual type of task in language teaching (mostly to increase the vocabulary) are multiple-choice questions (Alderson & Banerjee, 2002). For our game, we identified between 20 and 30 questions that were relevant to the subject matter (e.g. What time do I have to *check-out* by?). The wording and relation among questions was not relevant for this step, so different sources (when available) can be used or questions made up.

Once relevant questions were established, 2 or 3 situations where these questions could arise were identified. For instance, the check-in and check-out at the hotel implied the use of many common expressions, while needing few graphic assets (the lobby and receptionist could be reused). A simple story was developed for these situations, including the reason for the stay and conversations of which the questions were part. This was represented directly using the <e-Adventure> WEEV tool as shown in Figure 2.

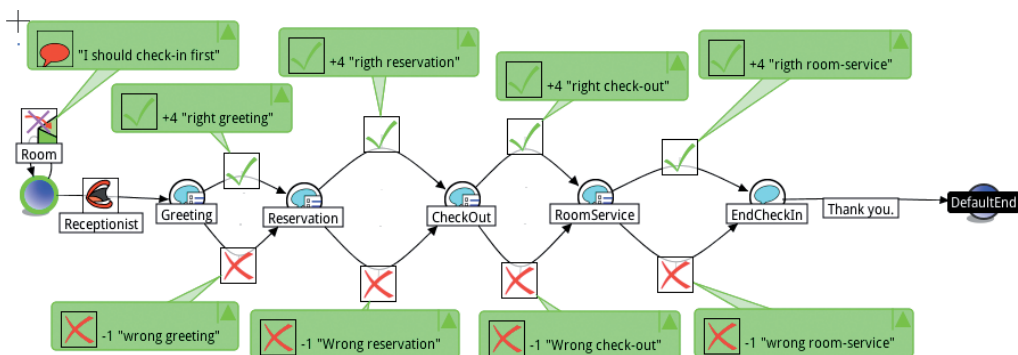


Figure 2. This figure shows a simple story, where talking with the “Receptionist” starts a conversation with a series of questions to the player (“Greeting”, “Reservation”, etc.). The game continues even when the wrong answer is given, thus the feedback is delayed until the end.

To test the game, however, simple assets needed to be developed. These were created using simple line drawing of stick figures that were then scanned. One of the advantages of using the <e-Adventure> platform in this regard is the fact that graphic resources can be easily modified and improved in a later stage. Once these assets were created the game could be play tested (Figure 3) and



Figure 3. The use of simple line-drawing with stick figures allows for rapid game prototyping and validation of the games. These graphic assets can be gradually replaced with production quality figures.

validated by domain experts and students. This validation and tests can be easily preformed within the destined LAMS sequence, as the games created in this manner can be included directly.

Future steps in the development include the creation of new game situations (achievable thanks to the hierarchical representation used in WEEV) and the improvement of the graphic assets of the game.

CONCLUSIONS AND FUTURE WORK

The rapid prototyping model proposed in this paper allows for the creation of language-teaching games with limited cost and resources, in a reduced time frame and by users with reduced technical knowledge. This approach allows the validation and play-testing of games before important time commitments and investments are made.

The game developed as a use case is currently in the validating phase and is expected to follow the rest of the model, including the increasing improvement of the graphic assets, should experts in the field validate it.

Future work in this field includes the identification of more recurring structures in language teaching as well as applying the same principles to other areas of knowledge. At the same time, a library of pre-created assets is being developed to help the creation of rapid prototypes for educational games.

ACKNOWLEDGMENTS

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ESTABLISHING A BALANCE BETWEEN TEACHER-BASED CLASSROOM TEACHING AND E-LEARNING

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ABSTRACT: This paper investigates the integration of an innovative approach with an interdisciplinary-driven methodology in the teaching of English as a second language. It presents the findings of the authors' research which aimed to establish a balance between teacher-based classroom teaching and e-learning. A needs analysis of our students confirmed our intuitive awareness that conventional approaches could highly benefit from a range of well-selected authentic Internet texts, commentaries, videos and a broad range of real every-day language comprehension exercises, which are provided by the world wide web. On the other hand, preliminary questionnaires, given to our students, showed that their preferences are clearly oriented towards human interaction in the second language where they could demonstrate their capacity to use various functions of the target language in a friendly environment. With these considerations in mind, we designed our proper teaching materials for a two-stage course oriented towards B2 level of English, according to the Common European Framework for Languages. The initial stage of the project consisted of a compilation of a frequency-based corpus of sports texts which was enriched by a more advanced subject-specific research articles corpus. One of the most interesting outcomes of the project was an acquisition-oriented methodology, based on the concept of pivot.

Keywords: balance, sports texts corpus, research articles corpus, pivot.

INTRODUCTION

Our paper is about some insights gained through teaching of English as a second language, regarding the integration of Computer Assisted Language Learning (CALL) into the curriculum of English as an academic discipline. The paper has been focused on two related areas:

- 1) a design of a syllabus of a Basic English for Sports Students course and its continuation, Advanced English for Sports Students and
- 2) a sample lesson built on the linguistic and pragmatic function of a pivot.

The different phases of design, implementation and evaluation of the project have been developed within a high technological environment where the role of the tool, the computer and the corresponding computer related activities, is viewed as supplementary and secondary to the role of the teacher as a curriculum builder, class organizer, motivator and a provider of cognitive stimulus for students.

SUBJECTS

The initial point of the project was the first semester of 2009 when we taught four groups (between 18 and 25 students each) of 22/ 23-year-old students at the Faculty of Sports and Sports Sciences, INEF, at the Polytechnic University of Madrid. English is taught as an elective subject in the second and third year of the general course. The Faculty prepares its students for various work fields, apart from the typical sports related jobs, such as coaches, sports commentators and sports teachers. In accordance with the Bologna process, English will become a core curriculum subject starting from next school year. This implies higher requirements for both students and teachers.

SYLLABUS DESIGN FOR SPORT STUDENTS AND THE ROLE OF CALL

Developing a syllabus for sports students implies carefully selected content and clear linguistic tasks oriented towards gradual acquisition of English as a second language. Providing appropriate instructions and methodology is viewed as crucial for the target skills and capacities which we expect our students to develop. What is even more important here is the fact that our students are among the most action-oriented students not just in terms of acquiring a discipline, but also in terms of daily activities. Thus, finding the appropriate method of teaching or designing tasks intrinsically related to the way students acquire sports and sports disciplines would guarantee our overall success with the courses.

Within the traditional approach to second language learning, CALL materials have been included as part of the learning process, though they do not represent

an aim in themselves. In a rapidly developing technological world, our students, similar to the majority of university students, benefit from “virtual interaction”, retrieving information from the Internet or creating their own materials in the form of blogs. However, what they consider a “pressing need” is practice and interaction in English which would raise their self-esteem and help them feel equal to the rest of the English-speaking community. As a matter of fact, most of the students enrolled in the courses because of that necessity. This is one of the reasons why we did not primarily rely on computer designed materials. Another reason concerns the practical non-existence of a specific English online course for sports students. Even if there was such a course, it would not relate to the age of our students, their future career expectations, their motivation or cultural background.

We are fully aware of the advantages of CALL. Changes in our environment involve more than just adding new technology to old ways of organizing teaching and learning. Although shifting the study of English for Specific Purposes (ESP) from the realm of the classroom to the domain of the computer is seen as a potential threat to the classroom interpersonal dynamics and is sometimes viewed as an easy way of giving and correcting assignments, we believe that teaching methods should be flexible and should allow for the integration of technological novelties. Eliminating teacher’s control over classwork allows students to take responsibility for their work, make their own choices and ultimately, become more self-assertive in English.

From a *psychological point of view*, the theory of the *flow*, developed by Mihály Csíkszentmihályi (1990), probably best describes our objectives. This author introduces the concept of *overlearning*, a **process which enables the mind to concentrate on visualizing the desired performance as a singular, integrated action instead of a set of actions**. We exemplify this approach in the sample lesson below. In addition, in a *task-based approach*, the one we consider the most appropriate for our students, the difficulty of the task should be a little higher than the abilities of the learner. This could be achieved measuring up every single task we give to our students. The conditions which are necessary to achieve the state of *flow* represent, in fact, the goals of ESP, defined by Hutchinson and Waters (1987).

- Learners should be involved in an activity with a clear set of goals.
- Learners should have a good balance between the perceived challenges of the task at hand and their own perceived skills.

- Learners should have confidence that they are capable to do the task at hand.
- The task at hand must have clear and immediate feedback.

The pedagogical objectives underlying the acquisition of cognition and linguistic competences have not been underscored at the time of choosing the most appropriate computer-related materials. Appropriateness is one of the criteria, related to the pedagogical objectives.

In terms of *appropriateness* of the materials and the methodology applied throughout the implementation phase of our courses, we had to be very flexible and open to new technologies. ESP materials are becoming more and more “tailor-made”. In our particular field, designing “tailor-made” courses would mean creating a course for coaching, for sports doctors, for nutritionist and so on and so forth. Conversely, restricting this task would mean generalizing around all these disciplines and finding the core terminology, a range of basic expressions and a range of communicative skills. As technicalities relate to subject-specific vocabulary and structures, collaboration with sports sciences specialists has played an important role in the process of teaching. Such a specialist, for example, is Nancy Clark, a renowned author and board-certified specialist in sports dietetics, whom our students contacted by email. Sending an email might seem technologically trivial. If the task, though, is construed around a more creative idea, closely related to the students’ interests and motivation, it would be viewed as an innovative way of acquiring knowledge. This knowledge came through an expert in the form of simple answers, to the biggest satisfaction of our students. The activity was part of the introduction to the Sports Nutrition unit which we had designed. Previously, the students listened to Nancy’s interviews on the web. From the teachers’ point of view, this mini-project paved the way for the acquisition of more sophisticated material in a natural way.

A LEG TO STAND ON

Our innovative technique “rotates” around the concept of **pivot**. As our interest lies in the way sports students conceive the idea of a “pivot”, here we provide some “sports pivots”.

- NBA *The area near the basket, generally where the center operates, or the act of changing directions, by keeping one foot planted on the ground while stepping in one or more directions with the other foot.*

- GOLF *The rotation of the shoulders, trunk and pelvis during the golf swing.*
- PIVOT *The action a player will use while in possession of the ball to move in any direction while still keeping one foot in contact with the floor. (<http://www.sportsdefinitions.com>).*

Linguistic Theories Relevant to the “Pivot” Strategy

Pivot grammar was developed mainly by Braine (1963). The object of study was the early child speech of English children. It was observed that a small class of words, called “pivot –words”, contained words of high frequency. Other words, which represented an “open class” of words could attach to the pivot-words, forming a two-word sentence. We highlight some of the characteristics of *pivots* which bear straightforward relation to our teaching technique.

- Pivots never occur as single-word utterances.
- Pivot have a very high frequency.
- Pivots have a fixed position.
- Pivots never occur alone.

From a *functional perspective*, Role and Reference Grammar (Foley & Van Valin, 1984)¹, a *syntactic pivot* is the syntactic argument which bears the privileged grammatical function in a construction. A *semantic pivot* is either the actor or the undergoer in a construction as they are the semantic controllers.

Langacker (1991) makes an observation that Foley and Van Valin (idem.) issue a broad challenge to the universality of subjects and that for the most part their proposal is “congenial to the general outlook of *cognitive grammar*”. The author specifies: “Because the subject (relational figure) always coincides with the highest ranked participant, the subject relation does not call attention to itself as a distinct construct. Still, its invisibility does not entail its absence.” (idem.: 320–321).

The insights that we get from this brief review concern the *privileged function of a pivot* and the fact that *a pivot does not necessarily calls attention to itself*. In terms

¹ The reader can also refer to the project FunGramKB, www.fungramkb.com/, directed by Dr. Ricardo Mairal Usón.

of creating **an efficient technique for text disambiguation** this means that students should be guided to find out not just the subject, being it semantic or syntactic. Rather, they should find a referent which could be kept in sight and easily tracked.

Application of the *Pivot* Technique

The following extract from “The Old Patagonian Express”, by Paul Theroux, contains six paragraphs printed in the wrong order (in Greenall & Swan, 1986). The students have to read through the text and put the paragraphs in the right order.

A. And the players watched, too. The game had stopped. The Mexican players kicked the turf, the Salvadorian team shouted at the Suns.

Please, return *the ball*. It was the announcer. He was hoarse. If *the ball* is not returned, the game will not continue.

This brought a greater shower of objects from the upper seats – cups, cushions, more bottles. The bottles broke with a splashing sound on the concrete seats. The Suns lower down began throwing things back at their persecutors, and it was impossible to say where *the ball* had gone. *The ball* was not returned. **The announcer repeated his threat.**

B. Soon, a bad kick landed *the ball* into the Shades. *This ball* was fought for and not thrown back, and one could see *the ball* progressing through the section. **The ball** was seldom visible, but one could tell from the free-for-alls – now here, now there – where it was. The Balconies poured water on the Shades, but *the ball* was not surrendered. And now it was the Suns’ turn to see the slightly better-off Salvadoreans in the Shades section behaving like swine. **The announcer made his threat: the game would not resume until *the ball* was thrown back.** The threat was ignored, and after a long time the ref walked onto the field with *a new ball*.

C. The players sat down on the field and did limbering-up exercises until, ten minutes after the ball had disappeared from the field, *a new ball* was thrown in. The spectators cheered but, just as quickly, fell silent. Mexico had scored another goal.

D. In all, *five balls* were lost this way. *The fourth* landed not far from where I sat, and I could see that real punches were being thrown, real blood spurting from Salvadorean noses, and the broken bottles and the struggle for the ball made it a contest all its own,

more savage than the one in the field, played out with the kind of mindless ferocity you read about in books on gory medieval sports. **The announcer's warning was merely ritual threat**; the police did not intervene – they stayed on the field and let the spectators settle their own scores. The players grew bored: they ran in place, they did push-ups. When play resumed and Mexico gained possession of *the ball* it deftly moved down the field and invariably made a goal. But this play, these goals they were no more than interludes in a much bloodier sport which, towards midnight (and the game was still not over!), was varied by Suns throwing firecrackers at each other and onto the field.

E. National anthems were played, amplified songs from scratched records, and then the game began. It was apparent from the outset who would win. Mexico was bigger, faster, and seemed to follow a definite strategy; El Salvador had two ball-hoggers, and the team was tiny and erratic. The crowd hissed the Mexicans and cheered El Salvador. One of the Salvadorian ball-hoggers went jinking down the field, shot and missed. *The ball* went to the Mexicans, who tormented the Salvadoreans by passing it from man to man and then, fifteen minutes into the game, the Mexicans scored. The stadium was silent as the Mexican players kissed one another.

F. Some minutes later *the ball* was kicked into the Shades ball section. *It was thrown back* into the field and the game was resumed. Then *it was kicked* into the Suns section. The Suns fought for it; one man gained possession, but he was pounced upon and the ball shot up and ten Suns *went tumbling after it*. A Sun tried to run down the steps with it. He was caught and *the ball wrestled from him*. A fight began, and now there were scores of Suns punching their way to *the ball*. The Suns higher up in the section threw bottles and cans and wadded paper on the Suns who were fighting, and the shower of objects –meat pies, bananas, hankies –continued to fall. The Shades, the Balconies, the Anthill watched this struggle.

“The Old Patagonian Express” by Paul Theroux.

Figure 1. Represents graphically the *pivots* which should be kept in sight in order to arrange the paragraphs in the correct order. We use *italics* to point out the spatial pivot, **bold** for the so-called “linguistic” pivot and underlined for the numerical pivot. The one that we call ‘spatial’ is a ball, a well-known and familiar concept.

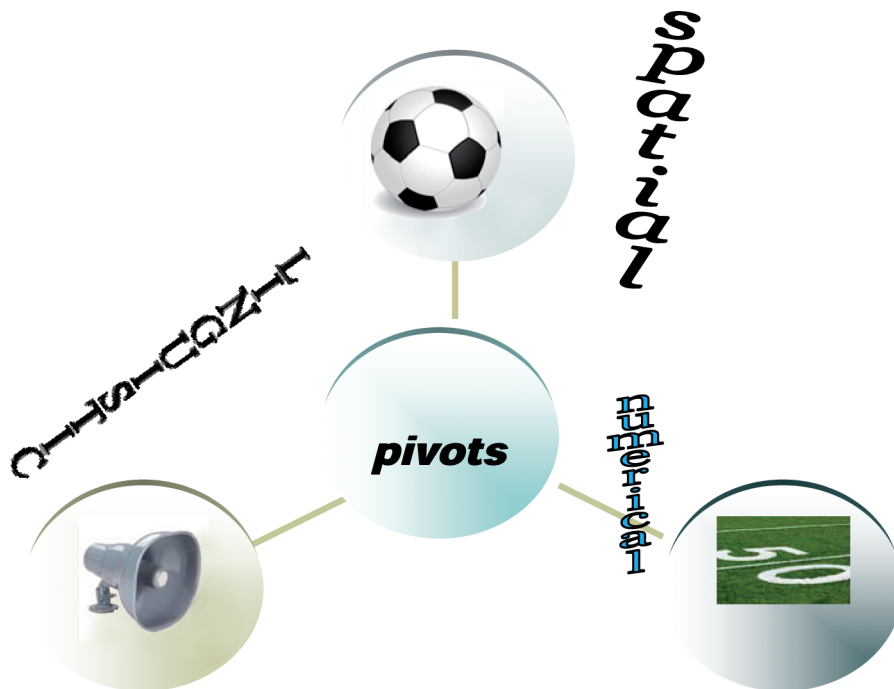


Figure 1. Possible pivots in the extract from *The Old Patagonian Express* by Paul Theroux.

We assume that *tracking* and locating *the ball* within the paragraphs would resemble an operation that our sports students are familiar with. Linguistically, our students track the referent, the *spatial pivot*. For lack of space and impossibility of a detailed discourse analysis, we mention the constructions containing a spatial pivot which are found in Paragraph A only.

- a) If *the ball* is not returned
- b) where *the ball* had gone
- c) *The ball* was not returned
- d) a bad kick landed *the ball*

The students' attention is directed towards the location of the pivot at any moment related to the four structures. As neither of them seems to refer to the offset of the match, the students make a natural and logical conclusion that Paragraph A is not the first paragraph of the text. On analogy, they track the spatial pivot in the rest of the paragraphs.

The second pivot, which we call *linguistic*, contains the announcer's words. Whereas the spatial pivot could be omitted in a number of languages, the second pivot refers to the comment made from someone who is not exactly a participant in the game. Here we chose a second "leg to stand on".

Finally, we chose a *numerical* pivot whose function is to track the score of the match or to infer information from either lexical or grammatical items, such as *Mexico had scored another goal*.

To illustrate the simplicity of the method and its practical application, we chose software, called **pivot stickfigure animator**, <http://www.snapfiles.com/get/stickfigure.html>, which is able to change the location of *the ball* according to its location in the text. Students can file the animations, rearrange them and finally obtain the correct order of the paragraphs. The numerical pivot is easily represented on a pitch which reflects the changing score of the match, a technique widely used on football stadiums. The speaker is provided by the voice of a student and added to the total product.

CONCLUSIONS

The technique we have used allows for an active and mindful acquisition of the language, (Houston & Paaige , 2010). As a result, we have observed a higher degree of student-teacher and student-student interaction and collaboration, i.e., that kind of determination to reach *an identical objective*, shared by both a teacher and students.

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SECTION 3
TECHNOLOGICAL INNOVATION IN TERMINOLOGY
AND TRANSLATION

USING ONTOLOGIES FOR TERMINOLOGICAL KNOWLEDGE REPRESENTATION: A PRELIMINARY DISCUSSION¹

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ABSTRACT: Within the framework of FunGramKB, the aim of this paper is to offer a preliminary discussion of how terminological knowledge representation could be better formalized along the lines of a robust knowledge base grounded in a deep semantic approach. After presenting the general architecture of FunGramKB, we move on to discuss how its Core Ontology interacts with the various satellite ontologies. A further step is to present a tentative proposal on the methodology to develop these satellite ontologies.

Keywords: FunGramKB, terminology, knowledge representation, knowledge acquisition, ontology.

INTRODUCTION

When it comes to building terminological resources, we sustain as a methodological credo the fact that terminography (or else lexicography) should never be divorced from advances attained in terminology (or else lexicology). This signifies that, on the one hand, terminological resources should be grounded in theoretical linguistic models that can provide clues as for meaning representation and construction, while, on the other hand, terminological thesauri should be able to comply with the challenges of providing better means for crosslinguistic information retrieval. In connection with this —differences

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aside, a number of interesting projects have been developed with a view to offering a more comprehensive terminological description, e.g. Ontoterm, EcoLexicon, among many others.

Within this context, FunGramKB² is presented as a multifunctional and multilingual knowledge base that integrates a comprehensive model of knowledge representation, including ontological, lexical and even constructional knowledge, being the latter inspired on the Lexical Constructional Model (LCM).³ Here are some of the most relevant methodological principles that have been discussed elsewhere:⁴

- a) Drawing on Velardi et al.'s (1991) distinction, FunGramKB follows a deep semantics approach in contrast to the surface semantic approach that defines other projects, e.g. WordNet (cf. Perriñán-Pascual and Arcas-Túnez 2007).
- b) Every concept in the knowledge base is provided with a number of properties: a meaning postulate and a thematic frame, among others. Consequently, a more fine-grained semantic description is attained if compared with other projects, e.g. SUMO.
- c) A concept-oriented interlingua, COREL (COncceptual REpresentational Language), serves to describe the properties of the different modules in the cognitive level (cf. Perriñán-Pascual and Mairal-Usón, 2010).
- d) A conceptualist rather than a lexicalist approach is maintained. The conceptual level in general, and the ontology in particular, becomes the pivot for the linguistic modules. Consequently, lexical representations in the form of conceptual logical structures now become real language independent representations. A conceptualist approach opens thus the door to the ability to link primes as posited in conceptual logical structures with conceptual units in the ontology, therefore redundancy is minimized while informativeness is maximized (Mairal-Usón, Perriñán-Pascual and Pérez Cabello de Alba, 2010).

² www.fungramkb.com

³ www.lexicom.es

⁴ For a more detailed description of FunGramKB and the LCM, we refer the reader to papers such as Mairal-Usón and Perriñán-Pascual (2009), Mairal and Ruiz de Mendoza (2009), Perriñán-Pascual and Arcas-Túnez (2007, 2010a,b), Perriñán-Pascual and Mairal (2009, 2010, fc), Ruiz de Mendoza and Mairal (2008), as well as the papers you can download from the two URLs stated in the previous footnotes.

- e) A robust meaning construction model, the LCM, is part of the knowledge base. This model includes, as part of the semantic component, four types of constructional level, including configurations that would be regarded by other theorists as a matter of pragmatic implicature, illocutionary force or discourse structure (cf. Ruiz de Mendoza and Mairal, 2008):
- (i) Level 1 produces core grammar characterizations.
 - (ii) Level 2 accounts for heavily conventionalized situation-based low-level meaning implications.
 - (iii) Level 3 is concerned with conventionalized illocutionary meaning (situation-based high-level implications).
 - (iv) Level 4 deals with very schematic discourse structures.

Within this context, the aim of this paper is to offer a preliminary discussion of the way terminological knowledge can be represented in FunGramKB. In connection with this, we will firstly draw a broad description of the architecture of FunGramKB, which includes a Core Ontology and is intended to comprise a number of different satellite ontologies.

THE ARCHITECTURE OF FUNGRAMKB

As shown elsewhere (Periñán-Pascual and Mairal-Usón, 2009, 2010, etc.), the architecture of our knowledge base comprises three major knowledge levels, consisting of several independent but interrelated modules:

Lexical level:

- The Lexicon stores morphosyntactic, pragmatic and collocational information about lexical units. For the actual format of these entries, we follow Role and Reference Grammar's universally based system of predicate decomposition (Mairal-Usón and Periñán-Pascual, 2009; Van Valin, 2005).
- The Morphicon helps our system to handle cases of inflectional morphology.

Grammatical level:

- The Grammaticon is composed of several construction modules which are inspired in the four-level distinctions of the LCM (cf. above).

Conceptual level:

- The Ontology is presented as a hierarchical catalogue of the concepts that a person has in mind when talking about everyday situations, that is, the repository of semantic knowledge. Every concept is provided with a thematic frame and a meaning postulate.
- The Cognicon stores procedural knowledge by means of conceptual macrostructures, i.e. script-like schemata in which a sequence of stereotypical actions is organised on the basis of temporal continuity, and more particularly on the basis of Allen's temporal model (Allen, 1983; Allen and Ferguson, 1994).
- The Onomasticon stores information about instances of entities and events, such as Einstein or the Mother's Day. This module stores two different types of schemata (i.e. snapshots and stories), since instances can be portrayed synchronically or diachronically.

The main consequence of this two-level design is that every lexical and grammatical module is language-dependent, while every cognitive module is shared by all languages involved in the knowledge base. Therefore, computational lexicographers must develop one Lexicon, one Morphicon and one Grammaticon for English, one Lexicon, one Morphicon and one Grammaticon for Spanish and so on, but knowledge engineers build just one Ontology, one Cognicon and one Onomasticon to process any language input conceptually.⁵ Figure 1 illustrates this architecture of FunGramKB.

The general-purpose ontology, or Core Ontology, can be enriched by linking different satellite ontologies that will represent specific terminological domains, i.e. law, finance, medicine, environment, etc.

The FunGramKB Core Ontology, which is conceived as a conceptual IS-A taxonomy, allows multiple non-monotonic inheritance and distinguishes three different conceptual levels, each one of them with concepts of a different type: metaconcepts, basic concepts and terminals.

- (i) Metaconcepts, preceded by the “#” symbol, constitute the upper level in the taxonomy and represent cognitive dimensions around which the rest of the conceptual units are organized. The analysis of the upper level

⁵ For the issue of the actual scope of the term “universal” and the way anisomorphism should be dealt with in FunGramKB, we refer the reader to Perrián-Pascual and Mairal-Usoñ (fc).

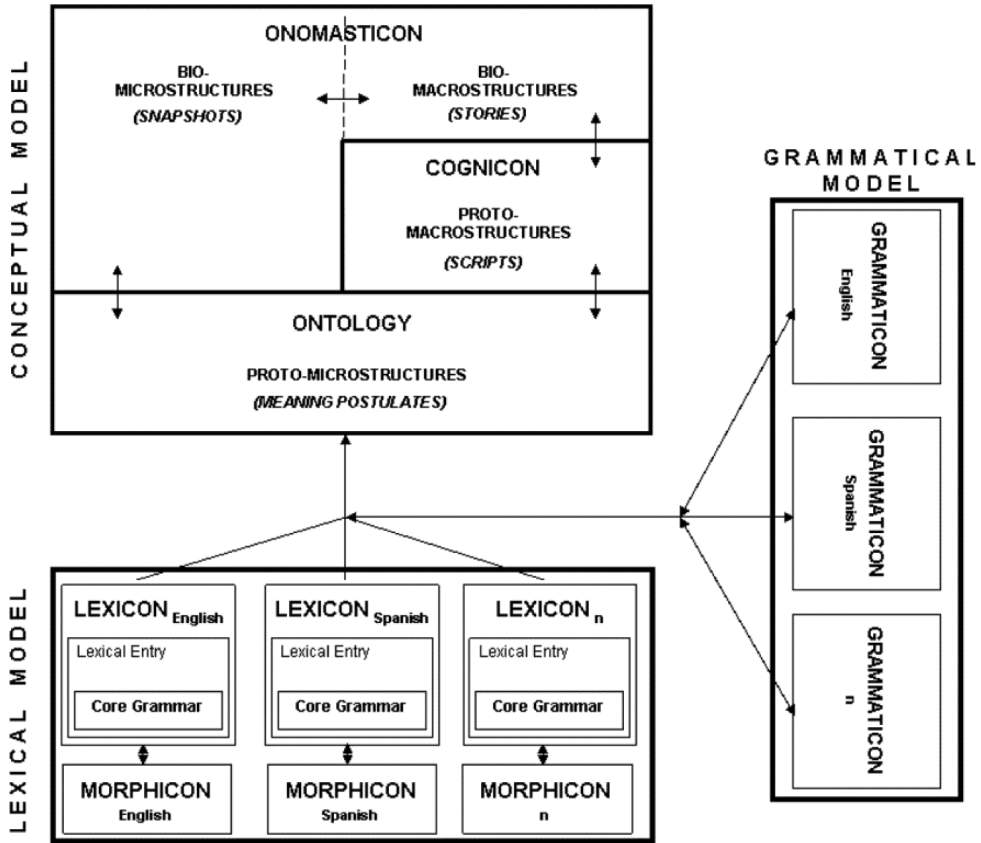


Figure 1. The architecture of FunGramKB.

in the main linguistic ontologies —SUMO, DOLCE, GUM, Mikrokosmos, SIMPLE etc.— led to a metaconceptual model whose design contributes to the integration and exchange of information with other ontologies, providing thus standardization and uniformity. Some metaconcepts are #ABSTRACT, #MOTION and #TEMPORAL. The result amounts to 42 metaconcepts distributed in three subontologies: #ENTITY, #EVENT and #QUALITY.

- (ii) Basic concepts, preceded by the “+” symbol, constitute the intermediate level of the Ontology. These are used in FunGramKB as defining units which enable the construction of meaning postulates for basic concepts and terminals, as well as taking part as selectional preferences in thematic frames.

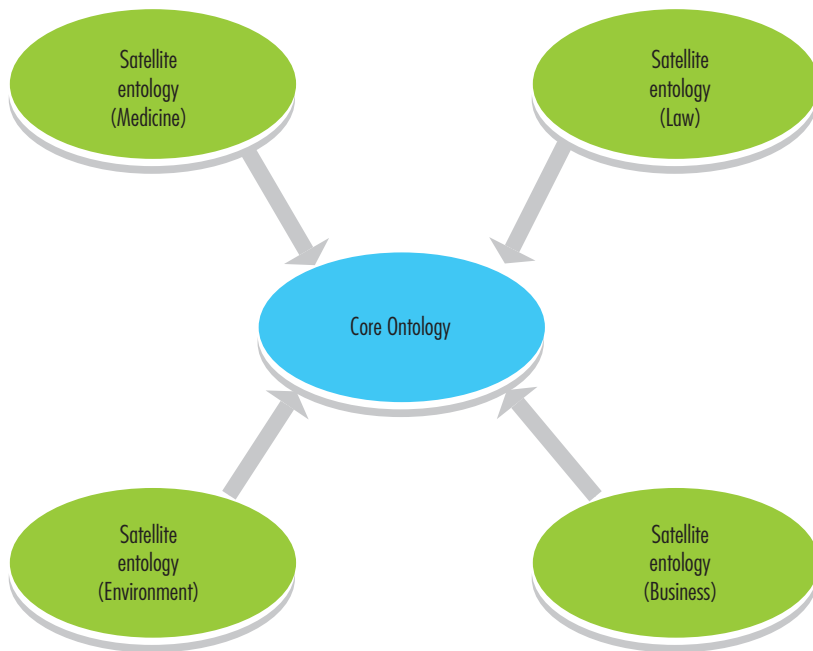


Figure 2. Core Ontology and satellite ontologies.

- (iii) Terminal concepts, preceded by the “\$” symbol, represent the final nodes in the conceptual hierarchy and lack definitory potential to take part in FunGramKB meaning postulates. Examples of terminal concepts are \$ADAPT_00, \$FLUCTUATE_00 and \$SKYSCRAPER_00.

The next section outlines a proposal for the development of satellite ontologies.

DEVELOPING A FUNGRAMKB SATELLITE ONTOLOGY: AN INCIPIENT PROPOSAL

Ontology development can become a tedious and time-consuming task if performed from scratch. Automatic knowledge acquisition, and more particularly ontology learning from texts, seems not to have reached research maturity, despite the relative success of projects such as OntoLearn (Velardi et al., 2005) or Text2Onto (Cimiano and Völker, 2005). Nowadays, the most reliable paradigm

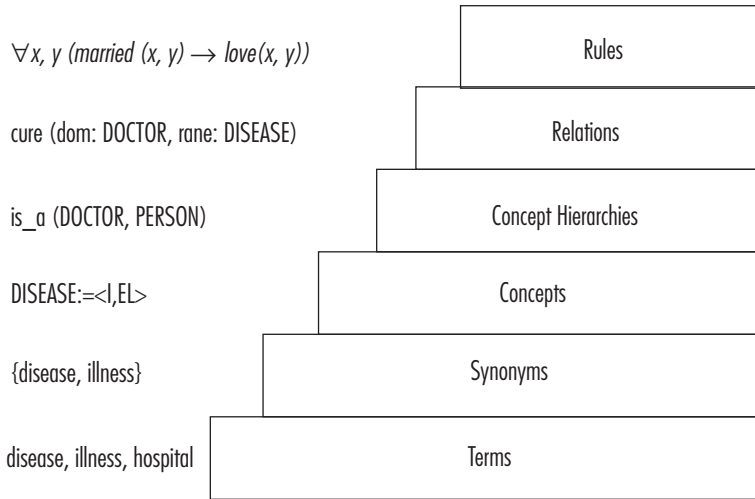


Figure 3. The Ontology Learning Layer Cake.

for ontology learning often makes use of semi-automatic methods with human intervention (Cimiano et al., 2009). The ontology developer’s workload varies depending on the expected output from the ontology learning application, as illustrated in the well-known Ontology Learning Layer Cake (Buitelaar et al., 2005).

The length of these layers is usually interpreted as the number of currently-available computer applications which are able to extract that output. However, these layers can also be interpreted as the amount of work to be done by ontology developers. Although not dismissing the possibility of adopting a model based upon lexico-syntactic patterns to detect hyponymy relations for taxonomy induction (i.e. the “Concept Hierarchies” layer), in this section we sketch out a less ambitious methodology for FunGramKB satellite ontology developers, who are usually linguistics-trained researchers. Since many different tools can perform the various tasks comprising our ontology development process,⁶ we encourage the reader to preferably focus on the description of the tasks and on the degree of automatization in the processes.

⁶ Indeed, in this paper, we have opted for freely-available and user-friendly software to illustrate each processing task.

Bootstrapping specialized corpora from the web

One of the first tasks consists in selecting a corpus from which a terminological repository can be extracted for a given domain. If such an ontology cannot be found, automatic web-based corpus construction will be required. In this case, we can use the BootCaT toolkit — Bootstrapping Corpora and Terms (Baroni & Bernardini, 2004; Baroni & Ueyama, 2004),⁷ a text-mining tool to automate corpus building through Google and/or Yahoo APIs.

This bootstrapping process is quite interactive, as shown in the following steps:⁸

- (i) You provide a set of seed terms which are randomly combined in order to build many tuples used as query strings. The more specialized we want our corpus to be, the more seed terms should be introduced.
- (ii) The system itself extracts new terms as seeds from the ongoing document repository to increase the size of the corpus.
- (iii) If the resulting corpus is not sufficiently specialized and/or large, the developer can generate a list of keywords with a corpus concordancer, e.g. AntConc (Anthony 2004).⁹ Thus, the final output can then be improved by applying again step (i) on the basis of these new keywords.

The final step in this task consists in post-processing the corpus, i.e. cleaning up the plain text file by removing non-alphanumeric characters, multiple whitespaces, URLs, email addresses, etc.

Extracting Mamed Entities from the Corpus

Before extracting the domain-based terminology, named-entity recognition, which aims at the identification of proper names, can be applied to the specialized corpus. For instance, the corpus-based named-entity recognition task can be fully automatic through the system ANNIE (A Nearly-New Information Extraction System) in GATE, a computer infrastructure to develop software

⁷ The tool is available from <http://bootcat.sslmit.unibo.it>

⁸ Sharoff (2006) provides an accurate account on the procedure of construction of a large corpus in which BootCaT is used. The results of his experiment can be browsed in <http://corpus.leeds.ac.uk/internet.html>.

⁹ The tool is available from http://www.antlab.sci.waseda.ac.jp/antconc_index.html.

which can perform NLP (Natural Language Processing) tasks.¹⁰ In fact, ANNIE is a controller managing the pipeline of NLP processing components (e.g. tokeniser, lemmatiser, sentence splitter, and so on) which will be run over the corpus. In the end, the system is able to identify named entities from the document collection, as well as assigning their corresponding semantic type, e.g. Person, Location, Organization, etc. (Cunningham, 2010).

Unluckily, named-entity extractors are not usually topic oriented, so we should sift out those entities closely linked to our domain from those entities which are commonplace. To illustrate, suppose that our corpus has been specialized, or at least we have tried it, in the topic of terrorism, and we have obtained named-entities such as al-Qaida, Hamas, Pakistan or USA, among many others. Instances such as al-Qaida or Hamas clearly fall into this topic, but Pakistan or USA don't.

Finally, the output of this discrimination process is exported to the FunGramKB Onomasticon, where named entities are stored together with their domain. Knowledge representations for these entities in the form of bio-structures (e.g. snapshots or stories) will be automatically constructed by means of mapping rules to the DBpedia knowledge base (Bizer et al., 2009).¹¹

Extracting domain-based terms from the corpus

Using a text-mining tool, such as TermExtractor (Sclano & Velardi 2007), allows us to parse the corpus, and automatically extract a list of «syntactically plausible» terms (e.g. compounds). Some membership criteria should be applied on the basis of both (i) topicality and (ii) speciality:

- (i) As with the named entities, we discriminate those terms belonging to the given topic.
- (ii) We also decide if each term is sufficiently specialized so as to belong to the satellite ontology.¹²

¹⁰ More precisely, GATE is defined as a “software architecture for language engineering” (Cunningham 2000). This application is available from <http://gate.ac.uk>.

¹¹ The DBpedia project is intended to extract structured information from Wikipedia, turn this information into a rich knowledge base, which currently describes more than 2.6 million entities, and make this knowledge base accessible on the Web. The population process of the FunGramKB Onomasticon from the DBpedia knowledge base is briefly described in Periñán-Pascual and Arcas-Túnez (2010b).

¹² For example, those terms included in language-learning dictionaries will be conceptually dealt by the FunGramKB Core Ontology.

Discovering the IS-A taxonomy

As far as the construction of the ontological taxonomy is concerned, we can work in two different scenarios: (a) reusing an existing ontology, or (b) building our own ontology. Scenario (a) is highly recommendable, since it is easier to populate an existing ontology with terms from our terminological repository than constructing a wholly new ontology from scratch. Indeed, if we find a high-quality fine-grained ontology for our domain, it is pointless to perform all previous processing tasks (i.e. sections 3.1 to 3.3). In that respect, OntoSelect (Buitelaar, 2004)¹³ can become a very useful resource, where a meaningfully-organized collection of over 850 ontologies covers a wide range of topics.¹⁴ In fact, one of the strengths of this ontology repository lies in its constant updating, since it crawls continuously the web for any newly published ontology.

To a greater or lesser extent, and regardless of the scenario, the ontology developer would have to populate the ontology with concepts from the list of terms, as well as checking the taxonomic relation.¹⁵ These tasks will be performed by means of an ontology editor, being our choice the NeOn Toolkit (Haase et al., 2008),¹⁶ an ontology engineering environment which provides many plug-ins supporting for the whole ontology life-cycle. In other words, the functionality of the NeOn Toolkit can be easily extended by integrating many different modules. For example, with regard to ontology reuse, the Watson plug-in (d'Aquin et al., 2007) allows the ontology developer to access external information from other ontologies for a given selected entity. Therefore, the NeOn Toolkit is able to guide the ontology developer's decisions by suggesting potential superordinates for every concept in the ongoing ontology. Thus, we conclude that conceptual hierarchization becomes a computer-aided ontology engineering task, where most of the workload lies on the human side but the computer helps us to model our ontological decisions.

Finally, this stage outputs an OWL ontology taking the form of an IS-A taxonomy, where classes are also labelled with a "definition" attribute. It is noteworthy to mention that, in order to export the ontology to the FunGramKB framework, a lexico-conceptual mapping should have occurred

¹³ The ontology library can be browsed in <http://olp.dfki.de/ontoselect>.

¹⁴ In OntoSelect, ontologies are published in RDF, DAML and OWL formats.

¹⁵ Subsumption is the only taxonomic relation permitted in the FunGramKB Ontology (Periñán-Pascual and Arcas-Túnez 2010a).

¹⁶ The tool is available from <http://neon-toolkit.org/wiki>.

along this stage, since terms should be converted into concepts in order to make the resulting ontology compatible with the FunGramKB conceptualist approach to language. In fact, our initial aim is to apply a similar methodology to the one used in the construction of the basic conceptual level in the FunGramKB Core Ontology.¹⁷

PROVIDING CONCEPTUAL SPECIFICATIONS TO ONTOLOGICAL UNITS

Once the IS-A taxonomy is stored in the FunGramKB satellite ontology, developers should construct the meaning postulate and other conceptual properties for every newly-included concept. This is indeed a computer-aided task, since the FunGramKB Ontology editor is able to check well-formedness and consistency of the input.

CONCLUSIONS

This paper has offered a very preliminary discussion of how terminological knowledge can be better represented within the framework of FunGramKB knowledge base. In connection with this, we have outlined the architecture of FunGramKB and have argued for the development of satellite ontologies that work in close collaboration with the Core Ontology. Moreover, we have shown the steps for a possible methodology for the development of satellite ontologies. In sum, we maintain that such an ontological approach to terminological knowledge offers a sound framework for natural language processing applications, i.e. crosslinguistic information retrieval.

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THEORY AND METHODS IN TRANSLATOR EDUCATION AT THE AARHUS SCHOOL OF BUSINESS

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ABSTRACT: The specialized translation program at the Aarhus School of Business (ASB) is based on two complementary approaches to applied linguistics: a) updated traditional translation strategies Vermeer and Nord (SKOPOS); Bhatia and Trosborg (genre analysis); and Vinay, Darbelnet, and Korzen et al. (contrastive stylistics); b) theories of specialised lexicography (Tarp), which have been developed within the ASB. This paper illustrates how to combine the traditional translation training strategies with the use of concordancing software to cope with translations. The experience with the ASB translation master's students shows that students eventually use this software to solve individually the course tasks.

Keywords: Computer Assisted Language Learning, Concordancer, Genre Analysis, Translation.

INTRODUCTION

Kastberg (2002) reminds us that technical knowledge grows exponentially and training specialised translation students within a very limited time requires that they build information processing skills linked to their future job reality: problem-solving strategies, self-directed learning, and team-work. This teaching approach is, according to Kastberg, adaptative in the sense that it allows students to cope with translations selected for educational purposes, as well as with any future subject matter. In other words, there is a shift from teaching contents to teaching processes and methods.

The translation master's at the Aarhus School of Business (ASB) has a long tradition of translation training. In 2008, a new structure was launched in order to allow for a *practicum* during the last semester. During the first semester of the

degree, all the students (English, French, German, Spanish specializations) receive a language specific version of a common *introductory module* to translation and interpreting. This introductory module has separate theory and applied classes. This paper describes how the applied classes of the introductory module for the Spanish translation students have been coordinated with the financial translation classes to combine the use of functional translation strategies and corpus analysis.

Although there are many software packs that can be used in translation training, there has been a certain reluctance to take steps towards their full didactic application. According to Bowker & Marshman (2009: 60), “electronic tools for translators and terminologists have often been relegated to a small number of courses within translation programs.” Kiraly (2000) argues that it is time to reconsider the conventional approaches in translation training which date back almost half a century. He actually recommends that the efforts to develop *translation competence* should be parallel to the development of a *translator competence* that involves the use of new software tools.

TOOLS AND METHODS USED

The introductory module of theory and methods consists of five two-hour sessions. In the Spanish department, we devote four of these sessions to teaching the use of a *concordancing software* for translation purposes. Vermeer’s *SKOPOS functional translation theory* is the theoretical foundation for the course as described in Scholdager (2008), which is the base material for the introductory module in all language departments (English, French, German, and Spanish).

We have selected the concordancing software *Antconc3.2.1w* (from now on *Antconc*) because it is easy to use and the students can work with it independently. This software can be downloaded for free from Laurence Anthony’s web-site: <http://www.antlab.sci.waseda.ac.jp/software.html>. *Antconc* can generate concordances (Key Word In Context or KWIC) and sorts the KWIC results. It can produce n-grams for one specific word or words or it can yield the n-grams for the whole corpus according to minimum and maximum cluster length criteria. This software analyses statistically the collocations for specific words. It also generates a word list for the whole corpus and, with a reference corpus available, *Antconc* extracts keyword lists from the corpus under study.

To work with this software we compiled several corpora: a corpus of informed consents in Spanish, a corpus of Spanish company by-laws, a corpus of

Spanish patient information leaflets, a corpus of Spanish purchase agreements, and two comparable corpora of annual report notes (one in Danish and one in Spanish). By comparable corpora (Teubert 1996: 252), we mean that none of them are translations and are similar in terms of contents and length. It must be taken into account that Danish is more concise than Spanish, so even though both corpora contain the same number of documents, the Spanish one is wordier.

The Spanish corpora are used to link the concept of *functional translation* with the concept of genre (Swales, 1990; Bhatia, 1993; Trosborg 1997; Trosborg, 2000) and applied to using Antconc for identifying generic features, extracting terms, and creating recyclable knowledge maps of genre translations. The Spanish–Danish comparable corpora are used both in the introductory module and the Spanish financial translation courses for a translation quality exercise that involves using Antconc, the comparable corpora, and the translation strategies learned in the financial translation classes to assess and correct samples of former students’ translations of annual reports.

It is generally accepted that the common tools for translation, i.e. dictionaries, lack essential information for the translation of specialised texts. This insufficiency of linguistic and extra-linguistic information can be lessened by resourcing to less traditional tools, for example: genre corpora. Specially compiled genre corpora compare favourably to the Internet in the sense that they provide a focused information search whose results are more relevant for solving the communicative and cognitive problems that emerge in the translation process.

Bernardini and Castagnoli (2008) describe the role of corpora in translation teaching and practice as ideal for the identification of stylistic features, idiosyncrasies, and register and genre conventions. The characteristics of the comparable corpora used for identifying these issues from a cross-linguistic point of view in the Danish–Spanish training sessions are shown in table 1 below.

Table 1. Annual report notes comparable corpora in Spanish and Danish.

	Spanish Corpus	Danish Corpus
Number of tokens	434,144	145,337
Number of types	15,100	10,701
Number of documents	14	14

A corpus meant for trainees of specialised translation should be customised to facilitate the search of terminology, collocations, and syntactic patterns within a given domain. As texts within a given domain may vary in terms of style and vocabulary, the ideal choice of texts collected for the corpus should be made as a function of the job the corpus shall fulfil (Bowker & Pearson 2002: 51). Setting the choice of specific genres as the criterion for corpus composition within a given domain allows avoiding homonyms and polysemes not belonging to the domain. At the same time, the users can see the specific moves and linguistic devices that belong to the idiosyncrasy of specific genres. Comparable corpora (Spanish-Danish) will reveal cross-cultural and cross-linguistic differences in moves, linguistic devices, genre-restricted phraseology and terminology.

STYLISTIC CONTRASTS BETWEEN SPANISH AND DANISH

The seven methods or strategies of translation developed by Vinay & Darbelnet (1959/ 1995:9) constitute an (implicit) evidence for the existence of certain contrastive features between the specific language pair rather than a taxonomy of contrasts. One type of contrastive feature, however, can be generalised, namely the predominance of French *nouns* compared to English, which can be observed at different structural levels:

A group of scholars at the Copenhagen Business School have set up a theoretical framework within which the contrastive features of the Germanic and Romance languages can be described (Korzen & Lundquist, 2003). Their study focuses especially on the contrasts between the Scandinavian and Romance languages: the endocentric (Scandinavian) family, characterized by relatively more information weight towards the centre of the proposition, i.e. *the verb*, and the exocentric (Romance) family, characterised by relatively more information weight away from the verb/verbal phrase, i.e. in *the noun*. One of the differences between the two language families is a predominance of nominal style in the exocentric languages and, by contrast, the predominance of verbal style in the endocentric languages.

Contrastive features have for many years been illustrated by examples or based on slim empirical foundation. In the translation training, however, with the electronic corpora it is now possible to demonstrate to what extent these features can actually be observed in authentic texts.

Due to the high occurrence of technical terms, the notes corpora do not reflect the prototypical contrastive feature mentioned. The high level technical content does not allow for paradigmatic choices between verbs and nouns, as opposed to other subgenres within the financial domain, for instance market reports.

However, in our note corpora we have found attestation for various facets connected to this preference for noun phrases in Spanish: In the first place, the use of demonstratives (*este/esta* etc.) without any written accent – apart from being a salient anaphoric device in itself – is normally combined with a noun phrase. Therefore, the frequency of this type of article should suffice as evidence for the frequency of this anaphoric item (demonstrative article + noun phrase) in the corpus. The findings in the Spanish corpus are shown in table 2:

Table 2. Spanish Demonstrative adjective occurrences used as cohesive ties.

Masculine singular	Feminine singular	Masculine plural	Feminine Plural
ESTE (661)	ESTA (628)	ESTOS (324)	ESTAS (365)
ESE (40)	ESA (26)	ESOS (4)	ESAS (16)
AQUEL (4)	AQUELLA (5)	AQUELLOS (101)	AQUELLAS (73)
2247 demonstratives: 0,517%			

The Danish equivalent construction does not occur with the same frequency in this specific genre corpora. In the first place, the percentage of demonstratives is much lower, as can be seen from table 3:

Table 3. Danish demonstrative adjective occurrences used as cohesive ties.

Dual	Neutral	Plural
DENNE (89)	DETTE (71)	DISSE (150)
310 demonstratives: 0,213%		

In the second place, the Danish demonstratives are not orthographically marked in terms of functions. A count of the Danish neutral ‘*dette*’ in the Danish corpus shows that only 25% of the occurrences are accompanied by a noun. A few instances from the two corpora show that, in fact, it is rather difficult to find matches of this anaphoric device, which is shown in table 4:

Table 4. Compared deictic references between Spanish and Danish corpora.

Este importe (20 out of 1627 occurrences) 1.22%	Dette beløb (1 out of 283 occurrences) 0.35%
Este tipo de + noun (23 out of 1023 occurrences) 2,24%	Denne type/denne slags + noun (0) 0%
Este ejercicio (19 out of 2053 occurrences) 0.92%	Dette regnskabsår (0 out of 178 occurrences) 0%
Esta modificación / estas modificaciones (84 out of 318 occurrences) 26.41%	Denne ændring /disse ændringer (4 out of 517 occurrences) 0.77%
Esta interpretación (43 out of 77 occurrences) 55.84%	Denne fortolkning (1 out of 95 occurrences) 1.05%
Esta norma (32 out of 95 occurrences) 33.68%	Denne standard (0 out of 25 occurrences) 0%

Another facet of the Spanish nominal stylistics is the relatively frequent use of noun phrases in additives:

Table 5. Spanish additives including noun phrases.

Additives	
En este sentido (31)	Por otra parte (35)
En este contexto (2)	Por su parte (24)
A este respecto (8)	Por otro lado (30)
Asimismo (153)	Además (84)
También (150)	

The Danish preference for shorter versions of additives, if any, without any NPs, is shown by the corpus findings in table 5:

Table 5. Danish additives.

Additives	
I den/denne forbindelse (4)	Herudover (36)
Ligeledes (28)	Desuden (20)

AN APPLIED LEXICOGRAPHIC APPROACH

On the basis of the term extraction processed by AntConc, the trainees are taught to make their own dictionary articles according to the theory of lexicographic functions. The theory focuses on making utility products for

specific users in specific situations. One of the functions is to assist the translation of texts (Tarp, 2004). The assistance here consists of providing 1) information on the specific subject matter in explanatory notes which take into account the translators' non- or semi-expert level in order to help the translators understand the specific technical terms and their context, and 2) collocations that show functional equivalents needed for the refinement of the target text.

Following our instructions of term registration, the trainees collaborate in making genre-specific dictionaries based on these lexicographic principles. This can generate dictionary articles like the article shown in table 6 on the term *afskrivning* including data based on the note corpora:

Table 6. Corpus-based dictionary entry.

<i>afskrivning</i>	
amortización	
Afskrivning af et aktiv betyder, at anskaffelsesprisen udgiftsføres over en årrække. Dette sker systematisk, således at der fratrækkes en bestemt procentdel af anskaffelsværdien hvert år. Afskrivningen afspejler normalt den værdiforringelse, der sker ved brug af aktivet, og det antal år, afskrivningen fordeles over afspejler aktivets formodede levetid, for maskiner og andre anlægsaktiver typisk 20 år.	
[A depreciation of an asset means that the cost of the asset is recognized as an expense in the income statement over a number of years. This is done systematically by means of deducting a certain percentage of the cost every year. The depreciation reflects the decrease in value during the expected useful life of the asset – typically 20 years for machines and other tangible assets]	
• <i>afskrive et aktiv over den forventede levetid</i>	<i>realizar la amortización de un bien en base a la vida útil estimada</i>
• <i>afskrivning af andre aktiver</i>	<i>amortización en otros activos</i>
• <i>foretage afskrivning af et aktiv</i>	<i>proceder a la amortización de un activo</i>
• <i>foretage afskrivning af et aktiv</i>	<i>realizar la amortización de un activo</i>
• <i>ikke afskrives</i>	<i>no ser objeto de amortización</i>
• <i>regnskabsmæssig afskrivning</i>	<i>amortización contablemente practicada</i>
→ nedskrivning	

The collocations reflect the genre-specific contrastive features of the functional equivalents found in the corpora.

The obvious advantages of corpus-based lexicography compared to the traditional method of introspection is described by Hunston 2002, who emphasises the elements of value added in terms of attestation of frequency,

collocations/phraseology, variation and authenticity (Hunston, 2002:96). These elements are of utmost importance for LSP translation from a genre perspective, and the genre corpora have proven their value in this context.

CONCLUSION

The training of specialised translation MA students must be done in a very limited time (4 semesters). One approach to maximise the didactic outcomes under these conditions is to focus the teaching on methods and processes that can be applied successfully to a wide range of translation scenarios. In this paper we have discussed how functional translation strategies, corpus analysis, and genre analysis increase the learners' autonomy in the field of specialised translation.

We have selected examples of contrastive features that illustrate how Danish and Spanish fulfil the communicative purposes of the same genre through different stylistic choices. The validity of these examples can be easily tested by the students with the use of the corpus and Antconc and they can extrapolate the corpus analysis techniques to other genres that they may encounter in their professional lives.

We have shown 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 analysed.

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THE TRANSLATION OF GIVE + NOUN COLLOCATIONS IN THE WORLD HEALTH ORGANIZATION WEBSITE

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ABSTRACT: In exploring the phenomenon of *collocations* –as a category of multi-word combinations– in bilingual dictionaries, this paper delves into the instrumentality of multi-word-combination dictionaries for the translation of verb+noun collocations, by paying special attention to delexicalized verb constructions with *give* in a comparable corpus of scientific and technical texts from the WHO in English and Spanish. By conducting a case study examining the use of these collocations in such bilingual corpora of texts, this contribution will substantiate not only the mistranslations pervading this service but also – and more importantly – the current deficit in tools enabling professionals to translate word collocations accurately and the potential of English-Spanish multi-word dictionaries like the one presented as part of this paper. Some comments are made on (a) the notion of collocation as a subcategory of multi-word combinations and support verb constructions; and (b) the problems posed by collocations in translation. The inconsistencies in the translation of such English multi-word expressions into Spanish are accordingly studied.

Keywords: collocations, delexicalized verb constructions, translation, English, Spanish.

COLLOCATIONS AS A TYPE OF MULTI-WORD COMBINATIONS & LIGHT VERB CONSTRUCTIONS

Collocations are often conceived of as *multi-word combinations* (Ilson, 2002: 333) whose meaning is more than the sum of the meaning of their components. As Benson, Benson & Ilson maintain in their approach to this lexical phenomenon, word combinations come into being when “certain words regularly combine with certain other words or grammatical constructions” (1997: ix). When exploring the word combinations of a language, both collocations and idiomatic expressions are examined as fundamental categories.

In particular, the notion of *collocation*, which is central to this paper, refers “to the tendency for certain words to occur together. The term itself comes from the verb *collocate*, meaning ‘to go together’” (Finch, 2000: 152).

A light verb, such as *have*, *give*, *take*, or *make*, is combined with a wide range of complements from different syntactic categories to form a new predicate called “a light verb construction or support verb construction” (LVC/SVC). From a semantic perspective, these constructions consist of a predicative noun and a support verb. The fundamental idea of a SVC is the realization of the arguments (i.e. the semantic actants) of the predicative noun as syntactic actants of the support verb. Prototypical support verb constructions are semi-compositional structures consisting of a semantically transparently used noun and a verb that is semantically reduced and adapted to the construction.

These expressions form a cline of idiomaticity from ‘clearly idiomatic expressions’ (e.g. *take time*, *have a look*) to ‘relatively idiomatic expressions’ such as *have a chance*, *take a walk*, *make a statement*, where the meaning of individual words is retained up to a certain extent and there are expressions that retain the core meaning of these verbs at the other extreme (Biber et al., 1999: 1027): e.g. *you can take a snack in your pocket*, *he made a sandwich*. These support verbs (e.g. *do*, *make*, *get*, *give*, *do*, *take* and *have*) are, according to corpus research, some of the most frequently used words used in the English language. Some people also call them ‘empty’ verbs because they usually have very little meaning. They are also particularly important for speakers of Latin languages because students avoid or do not even feel the need to use them as there is normally a one word translation between their L1 and English. However, when speaking, learners can sound odd or strange to the native speaker as their choice of language would be different.

Finally, it should be noted that Allerton (1984:33) points out that collocations are often arbitrary and unpredictable, and for that reason, the ELT teacher should obviously focus on the verb divergences among languages (i.e. *give a hand* > *prestar ayuda*, *echar una mano*, *not* * *dar una mano*) so as to avoid unwanted lexical interferences from the mother tongue and its wrong literal translations.

PROBLEMS WITH COLLOCATIONS IN TRANSLATION

As stressed by Hatim & Mason, when translating from one language into another, “collocation is crucial in establishing lexical cohesion” (1997: 46).

Admittedly, the translation of collocations is often the source of problems for the translator, and may be contextualised within the study of translation errors. As Baker puts it, “differences in the collocational patterning of the source and the target languages create potential pitfalls and can pose various problems in translation” (1992: 54). According to Hatim & Mason (1995: 257), this is indeed a well-known area of problems for the translator, as revealed by studies published some decades ago like Mackin (1978); or Chapter 2, section 7 on ‘Linguistic goings-on’ in Carter & McCarthy (1988), just to quote two examples. Newmark (1995) explains the problem in an illuminatingly metaphorical way when claiming that “translation is sometimes a continual struggle to find appropriate collocations [...] if grammar is the bones of a text, collocations are the nerves, more subtle and multiple and specific in denoting meaning, and lexis is the flesh” (213).

In this context, Baker’s taxonomy of the various problems that collocation may cause to the translator might be relevant:

- *The engrossing effect of source text patterning*: “Translators sometimes get quite engrossed in the source text and may produce the oddest collocations in the target language for no justifiable reason” (1992: 54).
- *Misinterpreting the meaning of a source-language collocation*: “A translator may easily misinterpret a collocation in the source text due to interferences from his/her native language. This happens when a source-language collocation seems to be familiar because it corresponds in form to a common collocation in the target language” (1992: 55).
- *The tension between accuracy and naturalness*: “In rendering unmarked source-language collocations into his/her target language, a translator ideally aims at producing a collocation which is typical in the target language while, at the same time, preserving the meaning associated with the source collocation. This ideal cannot always be achieved” (1992: 56).
- *Culture-specific collocations*: “If the cultural settings of the source and target language are significantly different, there will be instances when the source text will contain collocations which convey what to the target reader would be unfamiliar association of ideas” (1992: 59).
- *Marked collocations in the source text*: “Unusual combinations of words are sometimes used in the source text in order to create new images. Ideally, the translation of a marked collocation will be similarly marked in the target

language. This is, however, always subject to the constraints of the target language and to the purpose of the translation in questions” (1992: 61).

STUDYING THE WHO'S WEBSITE VERB + NOUN COLLOCATIONS

Objectives

Our data for analysis in this paper will be twelve frequent collocations in English with the verb *give* after Biber et al. (1999: 1027). We have chosen as well noun collocates with a high frequency in both languages. Results only reflect the base + collocate, excluding tense, number and lexical variation. In most cases, *give* as a thin verb is used for action that is beneficial to the speaker, performing a service for them with some exceptions: *give somebody a beating* /*give somebody one's attention* is not necessarily of benefit to the patient. The nouns that collocate with *give* in our data are in line with its sub-meanings: what is given is usually a right or permission to act (i.e. *give access, admission, etc.*). The thing given can also be information (*give answer, give assurance*) or a different kind of general service (*give aid, attention, etc.*). This also seems to be the case with the Spanish counterparts.

In particular, twelve examples of translations of support verb collocations will be studied. All varieties of Spanish, both Peninsular and Latin-American, using the *Diccionario de la Lengua Española* (2001) have been taken into account.

Considering the interface of translation studies and lexicography referred to in the scope-and-purpose section of the paper, the Corpus de Referencia del Español Actual (CREA) by the Spanish Royal Academy will be drawn upon for testing the appropriateness of the translations provided on WHO's website. In so doing, a view of corpora as a fundamental tool for lexicography is adhered to. More importantly, this contribution adds to Hunston's (2002: 96-197) detailed evidence regarding the applications of corpus linguistics for translation studies. The number of collocates is placed before the collocation or the full lexical verbs used in translation.

Table 1. The examples studied.

SUPPORT VERB CONSTRUCTIONS WITH GIVE	NUMBER OF TOKENS in the WHO's website (ENG)	TRANSLATION INTO SPANISH AND NUMBER OF TOKENS (SVC & FULL LEXICAL VERBS)
1) give advice	110	69 dar consejos, 352 aconsejar
2) give information	114	171 dar información, 3250 proporcionar información, 284 brindar información 2460 informar
3) give an answer	14	403 dar una respuesta, 3810 responder
4) give/ pay attention (to smt./ sb.)	42/ 198	958 prestar atención
5) give/ render assistance to sb	11/ 10	43 dar asistencia, 1230 asistir
6) give a hand to sb	1	30 dar ayuda/ 170 prestar ayuda
7) give/ offer aid	3/ 10	30 dar ayuda/ 170 prestar ayuda
8) give an address to sb	2	2 dar un discurso
9) give evidence for/ against	3/1	0 prestar declaración/ 1070 probar
10) give authorization	4	1 dar autorización, 404 autorizar
11) give access	25	116 dar acceso , 1450 acceder
12) give a solution/ solutions	3/3	14 dar una solución/ 28 dar soluciones

Quantitative Results

The most common support verb collocation is *pay attention/ prestart atención* followed by *give information/ dar información* and *give advice/dar consejos*. It should be noted that there is an overall preference in the two languages for using single word units instead of support verb constructions: i.e give an answer > 403 tokens for *dar una respuesta*, 3810 *responder*. There is an exception in this corpus: the figure for *proporcionar información* (3, 250) is significantly higher than the verb *informar* (2,460 tokens).

Translation of support collocations from English into Spanish

Qualitative Analysis

It is interesting to note that the Spanish translation uses sometimes a slightly more informal support verb construction as in the following example:

The Measles Bulletin **provides information** on cases of suspected measles, such as the number of cases reported by country and their final diagnoses > El Boletín del sarampión **da información** sobre los casos presuntos de sarampión, el número de casos notificados por país y los diagnósticos finales.

There are also instances of literal translation as in:

...the factors that influence this distribution **provide direct information** on the health of people exposed to an agent and are given the highest weighting>.. los factores que influyen esta distribución **proporcionan la información** directa sobre la salud de las personas expuestas a un agente ...

Give advice is a frequent collocation in this website, which is not surprising as this website contains a lot of information concerning different aspects of Health and Health Care. Let's look at the example below:

This booklet is written to **give advice** on how these health risks can be reduced> El folleto se ha preparado para **dar información** sobre la manera de reducir esos riesgos para la salud.

Other feasible translation alternatives: *proporcionar información/ recomendaciones*, also fairly common in CREA (Corpus de Referencia del Español Actual).

A fairly similar example opts for a more formal and elegant rendering into Spanish although its usage is significantly lower in the website compared to *dar/ proporcionar información*

This 2003 analysis of cervical cancer in Latin America and the Caribbean, published at the end of 2003, **provides information** for public-health professionals... >análisis de la situación del cáncer del cuello del útero en Latinoamérica y el Caribe, publicado a fines de 2003, **brinda información** para profesionales ...

CONCLUSIONS

The collocational patterns under study here, delexicalised *give* + noun collocations, are related to what is typically said, rather than what can be said, but they admit lexical, diatopical, register and tense variation.

From a quantitative point of view, it is interesting to note that in general terms this website prefers a single lexical verb instead of the support verb construction for probable reasons such as economy of expression (i.e. *dar noticias/*

informar) . Overall, similar patterns of frequency use appear among the collocations in the two languages, with the exception of *give information* (114 tokens) versus *proporcionar información* (3, 250), which is also significantly higher than the verb *informar* (2,460 tokens).

From a qualitative point of view, this bilingual comparison exercise of delexicalised verb collocations renders interesting insights about certain coincident phenomena worthy of attention in both languages: first of all, their overall association with abstract nouns. Secondly, their favouring of those clusters tending to portray a factual view of reality (*give information, give advice*). News and reports, moreover, present conflictive situations and problems and their possible solutions, and hence resorts to down-to-earth and practical collocations such as *give aid/ proporcionar ayuda*.

Thirdly, nouns play a decisive role in both English and Spanish collocations because they select the verb and its syntactic demands. ESL (English as a Second Language) and ELE (Español como Lengua Extranjera) teachers should highlight these contrasts if they want their students to profit from collocations akin to native speakers. Fourthly, it is extremely important that L2 learners grasp not only the conventional grammar but also different types of collocations in connection with Syntax, Semantics and Pragmatics. Fifthly, there is a need for explicit training in de-lexicalised collocations according to Common European Framework standards to raise both awareness of ideational, interpersonal and textual functions and also awareness of authorial & distributional factors at play in each genre. Last but not least, the empirical data shown here show that the translation of collocations is difficult for non-native speakers in specialized contexts (Suau, 2010): to give evidence for /against [to evidence] prestar declaración a favor/ en contra de but not ★ dar declaración.

Data also prove that many collocation translations are idiosyncratic in the sense that they are unpredictable by syntactic or semantic features (i.e “brindar información”) . Quantitative and qualitative comparisons of collocations based on electronic corpora are greatly needed to highlight the similarities and, more importantly, the lexical and typological differences between both languages for a more fruitful use by technical translators & ESL learners.

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AUTOMATIC SPECIALIZED VS. NON-SPECIALIZED TEXTS DIFFERENTIATION: A FIRST APPROACH

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ABSTRACT: In this paper we would like to show that certain grammatical features, besides lexicon, have a strong potential to differentiate specialized texts from non-specialized texts. We have developed a tool including these features and it has been trained using machine learning techniques based on association rules using two sub-corpora (specialized vs. non-specialized), each one divided into training and test corpora. We have evaluated this tool and the results show that the strategy we have used is suitable to differentiate specialized texts from plain texts. These results could be considered as an innovative perspective to research on domains related with terminology, specialized discourse and computational linguistics, with applications to automatic compilation of Languages for Specific Purposes (LSP) corpora and optimization of search engines among others.

Keywords: Specialized Text, General Text, Corpus, Automatic Tool, Languages for Specific Purposes, Search Engines.

INTRODUCTION

There are several works about the differences between general and specialized texts. Most of them consider that lexicon is the most distinguishing factor (besides being the most visible) to carry out this differentiation. It is well-known that terms (units of the lexicon with a precise meaning in a particular domain [Cabré, 1999]) show the specialized content of a subject; therefore, they appear inevitably in texts of their domain. Kocourek (1982: 42) states that:

La langue de spécialité est une variété de langue à dominante cognitive dont les ressources, qui sous-tendent les textes sur tous les plans linguistiques, sont marqués par des caractères graphiques, par des tendances syntaxiques et, surtout, par un ensemble des unités lexicales qui reçoivent dans les textes une précision sémantique métalinguistique.

Thus, other characteristic features of specialized texts (as grammatical features, both morphological and syntactic) can be considered as specific of these texts. Features as verbal flexion related to grammatical person, verbal tense or verbal mode have been underlined in some works (Kocourek, 1982, 1991).

Some authors, using small corpora, have established some grammatical phenomena that may differentiate specialized texts. In some cases, they have considered only a very limited number of features of a single category; in other cases, a scarce number of texts has been analyzed manually. Hoffmann (1976) analyzes the frequency of names and verbs into a general corpus and a specialized corpus. Some authors have studied verbs into specialized French corpora (Coulon, 1972; Cajolet-Laganière and Maillet, 1995; L'Homme, 1993, 1995). More works where differences between general and specialized texts are shown can be found in Cabré (2007).

The question we want to answer is: Is it possible to find specific characteristics into specialized texts moreover of their discourse conditions, that are external to the text, or the terminology they have?

In this paper we would like to show, using a specific software tool that we have developed, that certain grammatical features, besides lexicon, have a strong potential to differentiate specialized texts from non-specialized texts. Although this subject has not been studied in depth in the literature, we have carried out some preliminary works about it (Cabré et al., 2010; Cabré, 2007).

Moreover, the automatic tool we have developed is going to be very useful for two tasks: the automatic constitution of corpora of specialized texts and the optimization of search engines (for users searching specialized texts).

In Section 2 we explain the methodology of our work. In Section 3 we show the experiments we have carried out and the obtained results. In Section 4 we present some conclusions.

METHODOLOGY

The methodology to carry out this work has several stages. In the first place, we have selected some linguistic features that may be characteristic of specialized texts and general texts. The experiments where these features were detected are Cabré et al. (2010) and Cabré (2007). Table 1 shows them.

Table 1. Linguistic features used in our work.

POS	Tag meaning	% in generalist text	% in specialized text
A	Determiner	10.00	9.90
C	Conjunction	6.79	7.62
D	Adverb	10.30	10.54
E	Especifier	4.39	5.49
JQ	Qualifier adjective	8.43	9.00
J	Adjective	4.56	4.48
N4	Proper noun	8.05	6.34
N5	Common noun	10.53	10.59
P	Preposition	10.35	10.34
R	Pronoun	6.34	7.03
T	Date	0.42	0.07
VC	Verb (participle)	4.51	4.47
V1P	Verb (first person, plural)	0.25	1.16
V1S	Verb (first person, singular)	0.13	0.24
V2	Verb (second person)	0.03	0.05
V	Verb	10.38	10.12
X	Number	4.54	2.56
Total	—	100.00	100.00

The full meaning of these POS (Parts of Speech) tags can be seen on the following URL: <http://www.iula.upf.edu/corpus/etqfrmes.htm>. Some POS tags are produced by simplification of the full tag (ex. ‘A’ is a simplification of ‘AMS’, ‘AMP’,...).

In the second place, we have compiled a corpus, divided into two sub-corpora:

1. A sub-corpus including texts from the specialized domain of economics, mainly scientific papers, books, theses, etc. (with 292,804 tokens corresponding to 9.243 sentences).
2. A sub-corpus with plain language form newspapers (with 1.232,512 tokens corresponding to 36.236 sentences).

Texts of both sub-corpora have been extracted from the Technical Corpus of the Institute for Applied Linguistics (IULACT) of the Universitat Pompeu Fabra of Barcelona. It consists of documents in Catalan, Spanish, English, German and French; although the search through *bwanaNet* is at the moment restricted to the first three of these languages. It contains texts of several specialized domains (economics, law, computing, medicine, genome and environment) and plain texts from newspapers. All the texts are tagged with POS tags. This corpus is accessible on-line via <http://bwananet.iula.upf.edu/>. Further details on these resources are shown at Vivaldi (2009). In this experiment we only use texts from economics. This is a field where there is a large overlap between topics and vocabulary in specialized and non specialized publications, making the task even harder.

In the third place, we have developed a tool including the mentioned linguistic features and we have trained it using these two sub-corpora. The machine learning approach that we used is based on association rules, one of the most-known methods to detect relations among variables into large symbolic (i.e. non numerical) data (Amir et al., 2004).

We choose to work on sentences instead of entire documents. Indeed, documents can be classified using contextual information about their structure or statistical information about their specific vocabulary. At sentence level, none of these informations can be used. Therefore, the application that we propose not only allows to classify texts, it also allows to look for technical statements inside non specialized documents.

In the fourth place, we have evaluated the results of the tool. This evaluation is based on the capacity of the tool to differentiate sentences coming from specialized texts from others over the mentioned test corpora (specialized and non-specialized).

EXPERIMENTS AND RESULTS

In our machine learning experiments with association rules, we have randomly selected 9,000 sentences from each corpus. Therefore the experiment has been carried out on a set of 18,000 sentences with a total of 112,870 tokens. We used 90% of both corpora (specialized and non-specialized) for training and the remaining 10% of them for test corpora, repeating this split 30 times at random. For the training, we have used sentences level (although we have tested that only sentences with more than six words can be classified). We have a machine learning strategy based on the combination of lexical features (lemmas) and grammatical features (POS tags).

Table 2 shows an example of plain text and its corresponding generated test corpus text. In bold we have marked the category GEN, which is indicating that this sentence is classified as part of a non-specialized text. Observe that “plain text” section includes the sentence as found in the general corpus while the “generated corpus text” section includes just a list of the lemma/tags found in such sentence.

Table 2. Example of plain text and generated test corpus text.

<p>Plain text</p>	<p>Tras el acuerdo con los pilotos, la dirección de Alitalia concluyó ayer de madrugada la negociación con los sindicatos del personal de tierra, que aceptaron 2.500 despidos (la propuesta inicial era de 3.500), la congelación de los salarios durante dos años y el bloqueo del fondo de previsión social durante el mismo periodo, para evitar la quiebra de la compañía.</p>
<p>Generated corpus text</p>	<p>GEN ser congelación despido previsión tierra dos dirección el tras para quiebra periodo negociación mismo piloto bloqueo = salario A Alitalia C D de N4 N5 personal compañía fondo P R que JQ V propuesta num X social con ayer aceptar madrugada sindicato concluir año inicial durante acuerdo y evitar</p>

We consider association rules of the form $X \Rightarrow D$ where X is a set of at most 5 lemmas and/or tags, D is the decision: SPE for specialized and GEN for general. For a rule to be valid, X has to be included in more than 0.5% of the sentences (this is called the support of the rule) and more than 90% of these

sentences that include X have to be in category D (this is called the confidence of the rule). Since the right part of the rule is restricted to a few numbers of categories, we shall refer to these rules as decision rules. This kind of rules can be computed using standard GPL packages like “Apriori” by Christian Borgelt (<http://www.borgelt.net/apriori.html>).

Our experiments show that this strategy allows us to obtain 46,148 decision rules. It appears that:

- 1) 60% of the rules induce category SPE, which means that there are more implicit decision rules among specialized texts than non specialized ones.
- 2) 78% of the rules include at least one grammatical tag which shows that this information is significant to distinguish between these two categories.

Table 3 gives the list of POS tags that are effectively used in the resulting decision rules.

Table 3. Tags included in rules with the percentage of rules using them.

POS	% of rules using them
A	17.36
C	12.26
D	17.72
E	6.81
J	6.69
JQ	14.91
N4	12.11
N5	17.88
P	17.77
R	11.26
T	0.17
V	17.20
VC	6.70
X	4.48

Here is a sample set of 10 rules randomly extracted from the total list of decision rules. Rules are given in Prolog format: the decision is on the left and the two figures give respectively the support and the confidence of the rule.

SPE ← europea N4 JQ N5 (50, 100.0)

SPE ← millones X JQ P (70, 100.0)

GEN ← anunciar N4 P = (80, 98.3)

GEN ← ayer uno R N4 (10, 100.0)

SPE ← función C JQ D (12, 93.1)

GEN ← Gobierno haber VC V (60, 100.0)

GEN ← España que P = (100, 100.0)

SPE ← embargo sin de N5 (70, 100.0)

SPE ← internacional a R N5 (12, 90.8)

GEN ← presidente en R JQ (80, 93.0)

Therefore each rule indicates that if a given set of lemmas and tags is included in one sentence, there is a specific probability to classify the sentences as general (GEN) or specialized (SPE). As an example, the first rule may be read as follows: if the sentence under analysis includes the lemma “europea” and words with the POS tags: “N4”, “JQ” and “NQ” then such sentence may be classified as specialised (SPE). The coverage of this rule is 50% with a 100% of precision.

Once this set of rules is available, it is possible to build a classifier that, given a sentence, looks for the set of rules that match the sentence and chooses the rule that has the highest confidence. One important feature of this type of classifier is that it indicates when it cannot take a decision.

Finally, for a given text under analysis if more than half of the sentences it contains belong to a given category the text is considered to belong to such category.

To evaluate the results of the classifier based on the total set of decision rules (Classifier_1) we have used precision, recall and F-Score measures. These results are shown in Table 4.

Table 4. Results of Classifier_1.

	Precision	Recall	F-Score
GEN	0.7602	0.8875	0.8190
SPE	0.8671	0.7239	0.7890
Average	0.8137	0.8057	0.8040

We have carried out another experiment using for the classifier (Classifier_2) only the association rules including at least one grammatical feature (POS tags). This is a subset of 36.217 rules (78%).

Results obtained by Classifier_2 are shown in Table 5.

Table 5. Results of Classifier_2.

	Precision	Recall	F-Score
GEN	0.7582	0.8959	0.8213
SPE	0.8749	0.7182	0.7889
Average	0.8166	0.8071	0.8051

This evaluation indicates that elimination of rules exclusively based on lemmas does not significantly degrade classifier performance. In fact, it seems that it lightly improves the average F-score. This shows that classifier performance mostly relies on rules with tags. Table 6 gives, for each tag, the percentage of decisions that used them.

Table 6. Tags used in decisions and percentage of decisions using them.

POS	% of decisions using each tag
C	4.62
D	3.30
E	1.67
J	1.17
JQ	3.21
N4	2.49
N5	8.71
P	9.63
R	2.9
T	0.11
V	2.05
VC	2.62
X	1.89

CONCLUSIONS

The results we have obtained until now show that the strategy we used in this work (machine learning techniques using association rules based on lexical and grammatical features) is suitable to differentiate specialized and plain texts. Moreover, we have shown that grammatical features are discriminant enough for this task.

In this application we choose GEN as default decision, but other strategies could be used. In particular we could use Hidden Markov Models (HMM), which would be a complementary approach. HMM are based on short sequences of tokens, meanwhile decision rules are based on small bags of tokens. We shall consider this enhancement in the future.

We think that these results constitute an innovative perspective to research on domains related with terminology, specialized discourse and computational linguistics, like for example automatic compilation of LSP corpora or optimization of search engines. Further experiments will be conducted using other corpora and in areas other than economics.

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USING ONTOLOGIES FOR THE TEACHING OF TERMINOLOGY: THE CASE OF A PACKAGE TRAVEL ONTOLOGY

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ABSTRACT: Ontologies play an important role nowadays in numerous fields: two of them are terminology and education. Based on that, this paper proposes to take a step forward and introduce ontologies in the teaching of terminology within the field of (foreign) languages for special purposes (LSPs). In this way, we will put forward a series of steps to teach specialised vocabulary related to package travel in a German class of the degree in Tourism, by exploring the use of some ontology browsers and editors.

Keywords: Ontologies, terminology, languages for special purposes.

ONTOLOGIES IN TERMINOLOGY

Ontologies can be defined from two main perspectives: Philosophy and Knowledge Engineering, in turn branch of Artificial Intelligence. *Ontology*, in the first sense, is the “part of the metaphysics that deals with the being in general and with its transcendental properties,” according to the *Diccionario de la Real Academia Española (Dictionary of the Royal Spanish Academy)*.¹ In the field of Knowledge Engineering, where ontologies are a means to create knowledge-based systems — so that knowledge can be codified and processed by computer— Gruber’s definition (1993: 199) is usually cited: “an explicit specification of a conceptualization.” Weigand (1997: 138), for his part, offers a more specific definition: “an ontology is a database describing the concepts in the world or some domain, some of their properties, and how the concepts relate to each other.”

Any ontology consists of a series of components. Corcho et al. (2005: 144–145) distinguish among concepts, relations, instances, constants, attributes, axioms, and rules:

¹ The definition in Spanish is: ‘Parte de la metafísica que trata del ser en general y de sus propiedades trascendentales’.

- *Concepts* represent ideas about the physical or abstract objects that constitute a domain. As the authors point out, concepts are usually organised in taxonomies through which inheritance mechanisms can be applied. In this way, a class can be divided into subclasses that represent more specific concepts: for instance, in the domain we are dealing with, we can have the class “transport”, which can further contain the subclass “ship”.
- *Relations* represent a type of association between concepts of the domain. The majority of relations link two concepts, so they are called *binary relations*.
- *Instances* represent individuals or specific elements of an ontology. So, for instance, the concept “hotel” can be instantiated as “Four Seasons Hotel”.
- *Constants* are numerical values that do not change during much time. For example, the minimum number of nights in a package travel is one.
- *Attributes* describe properties of concepts and of instances. The authors distinguish two types of attributes: *class attributes* and *instance attributes*. The former ones describe concepts and take their values in the concept where they are defined. The latter ones describe instances and take their values in them.
- *Formal axioms* are logical expressions that are always true and are normally used to specify constraints in the ontology.
- *Rules* are generally used to infer knowledge in the ontology, such as attribute values.

Figure 1 represents a simple ontology —also called *lightweight* ontology— containing classes, taxonomical relations, and ad hoc binary relations.

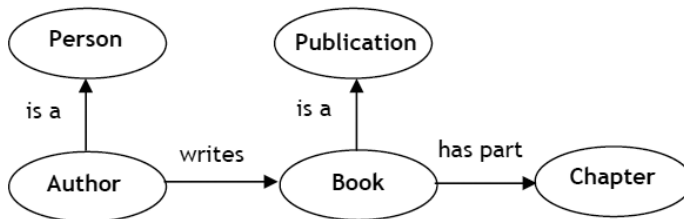


Figure 1. Simple ontology (Wilson, 2004: 2).

Ontologies can be built following diverse methodologies; it is also commonplace to use some kind of computer tool that helps in the process. On

the other hand, ontologies in their final form are formally expressed through ontology languages: the most common ones are OWL (Web Ontology Language) and RDF(S) (Resource Descriptive Frameworks), while some applications create their own XML format for ontologies.

Ontologies play an important role nowadays in numerous fields: Semantic Web, e-commerce, information retrieval, information extraction, indexing, and terminology. In this last respect, many authors and researchers have studied the link between terminology and ontologies: Moreno Ortiz (2000, 2008), Temmerman & Kerremans (2003), Vargas (2007), Aguado de Cea (2009), and Alcina (2009), to name just a few.

In this way, in relation to terminology, ontologies are considered as a valuable means to approach terminological work: the reason is that a substantial part of the terminologist's work needs a conceptual approach. As Vargas (2007) states, it is necessary to understand the area being explored in order to be able to structure it, classify it and define it; among other advantages, the conceptual structuring provided by ontologies allows:

- To determine the relevance of the terms in the domain; by dividing them into groups related to a certain subfield, it is possible to establish which ones are really interesting, based on the goals and the prototype user of the terminological application to be created (database, dictionary, vocabulary, etc.).
- To construct a more controlled and coherent terminology, given that structuring makes it possible to treat an area of specialty in a more systematic way.
- To define terminological units in a logical and systematic way.

Along this line of thought, Moreno Ortiz (2008) proposes the following definition for *ontology*: ontologies are conceptual and terminological descriptions of a shared understanding about a specific domain.

Moreover, given the close link between terminology and translation, some researchers have proposed to use the benefits of the ontological approach for multilingual dictionaries and, therefore, for translation (see, for example, Temmerman & Kerremans, 2003). In fact, a lexical resource based on ontologies could provide translators with the following information, among other data: a) the translation of a term; b) how that term is related to others from the same domain; and c) what properties and characteristics it has. An example is the *Dictionnaire Analytique de la Distribution* by Dancette & Rhétoré (2000).

On the other hand, ontologies can play an important role in the teaching/learning field:

Ontologies have a range of potential benefits and applications in further and higher education, including the sharing of information across educational systems, providing frameworks for learning object reuse, and enabling intelligent and personalised student support. (Wilson, 2004: 1)

This paper is based on the previous ideas and proposes to take a step forward and introduce ontologies in the teaching of terminology within the field of (foreign) languages for special purposes (LSPs). We consider, as does Fernández Nistal (2009), that more emphasis should be placed on the cognitive competence of terminology students; and that, as Wilson (2004) states, ontologies can directly benefit learners by helping them to visualise and comprehend the relationships between concepts in their domain, as understood by more experienced practitioners. This can trigger “associative ways of processing, reflecting and analysing information” (Aroyo & Dicheva, 2002).

ONTOLOGIES FOR LSP TEACHING

Taking into account the previous ideas, we propose to incorporate ontologies into the resources used to teach LSPs (Language for Specific Purposes): specifically terminology (specialised vocabulary) about package travel in German. In this way, the ontology becomes both a study and a reference tool, with which students can achieve a deeper understanding of the area being studied, as well as develop thinking skills that allow them to reflect on it, instead of just memorising a simple list of terms. Besides, as ontologies are computer-readable resources, this proposal will contribute to the use of Information and Communication Technologies (ICT) in class. The employment of ontologies will be combined with a number of exercises and activities which will help students in the process of learning a specialised language, and specifically, its terminology.

Construction of the Ontology

Before presenting the whole process, we will introduce the ontology we will be using as a model and will explain briefly how it was built. The ontology covers a number of basic concepts from the package travel domain and is based

on the *Council Directive 90/314/EEC on package travel, package holidays and package tours*. It is of lightweight type, meaning that it is made up of concepts, concept taxonomies, ad hoc binary relations, and properties; it does not have axioms or rules. The methodology followed to build it was the METHONTOLOGY methodology (Gómez-Pérez, Fernández-López & Corcho, 2003), and the language used to lexicalise the concepts was German.

As part of METHONTOLOGY, we carried out a series of steps, each of which specifies a different element of the ontology: building a glossary of terms, building concept taxonomies, building a concept dictionary, and defining the following elements in detail: ad hoc binary relations, instance attributes, and class attributes.

After that, the ontology was formally implemented by means of the web application WebODE (Corcho et al., 2002). WebODE was created by the same research group that devised METHONTOLOGY, so it suits perfectly the methodology applied and the results obtained from it. We can see a screenshot of how a concept is inserted in Figure 2.

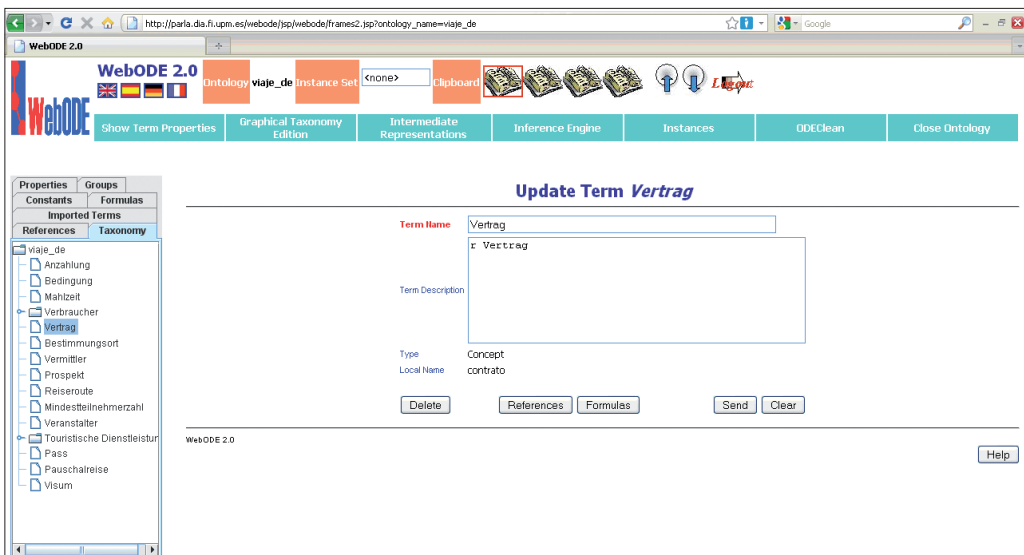


Figure 2. Introducing a concept in WebODE.

In this way, we created a lightweight ontology containing concepts, taxonomies, ad hoc relations between concepts and attributes, about the domain of package travel. The ontology is basic, in the sense that it contains only the most important terms of the field being studied.

Using the Ontology in LSP Class

The ontology will become a resource to teach terminology in the context of a LSP class: specifically, it will be used to teach specialised vocabulary related to package travel in a German class of the degree in Tourism. Prior to the use of the ontology, the students will have read a contextualised text (or texts) containing the terms to be studied. Then the steps to take will be the following: a) explaining the basics of ontologies and conceptual structuring to students (concepts, relationships, properties, instances, etc.); b) teaching them how to use a straightforward ontology browser or editor (i.e., how to visualise the content of an ontology, how to search for information); c) presenting the concepts and terms of the domain to be studied through the different view options of an ontology browser or editor; and d) carrying out various activities on the basis of the concepts and terms stored in the ontology. We will next go into detail:

a) Explaining the Basics of Ontologies and Conceptual Structuring to Students

The first step consists in teaching the students what an ontology is and what components it has (concepts, relations, properties, instances, etc.). Particular emphasis will be placed on the ideas of *semantic relationship* and *property*. Since the goal is mainly practical, the explanations and definitions will be kept as simple and clear as possible.

b) Teaching them how to use a simple Ontology Browser or Editor

The next step consists in teaching them how to use a simple ontology browser or editor, that is, how to visualise the content of an ontology, how to search for information, etc. There are a number of tools that could be useful for this task: OwlViewer, OwlSight, Ontology Browser, SWOOP and WebODE.

OwlViewer² is a web application that allows to explore OWL ontology files, displaying the terms and relations between them. Besides, additional information (definition, author or comments) can be displayed when the mouse is over a

² http://bioinfoibn.cnb.csic.es/VisualOmics/OwlViewer/index_OV.html

node to help the user in the identification of terms. It also allows to search into the ontology tree expanding the desired term, or providing its name or identifier. The application is mainly graphical, so it could be useful for our needs. See Figure 3 for a sample view of the main screen.

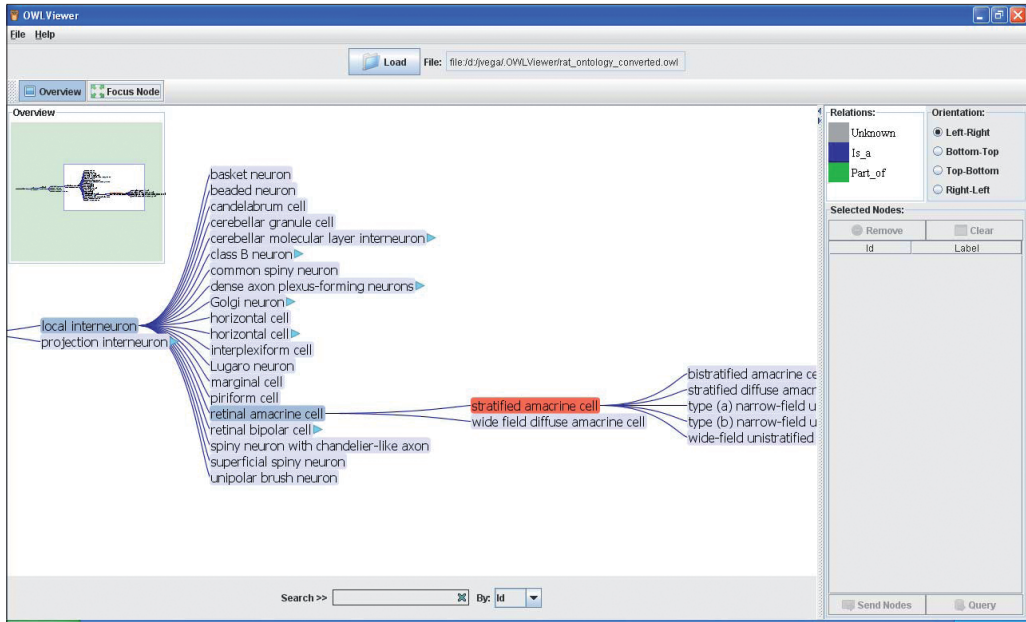


Figure 3. Sample view of the main screen of OwlViewer.

OwlSight³ is a lightweight OWL ontology browser that allows to display the ontology in a graphical way. The user can choose to view the class tree, containing all the classes in the ontology and their respective taxonomies, or the property tree, which displays all the different attributes stored in the ontology. A click over a certain class reveals more information about it: lexicalisations, relations, properties, etc. Figure 4 shows our package travel ontology: in this case, the concepts are represented by nouns in Spanish, and clicking over any of them reveals the lexicalisation in German.

Ontology Browser⁴ allows to navigate around ontologies created in OWL. The interface can display the list of all entities, of all classes or of all properties;

³ <http://pellet.owldl.com/owlstight/>

⁴ <http://owl.cs.manchester.ac.uk/browser/manage/>

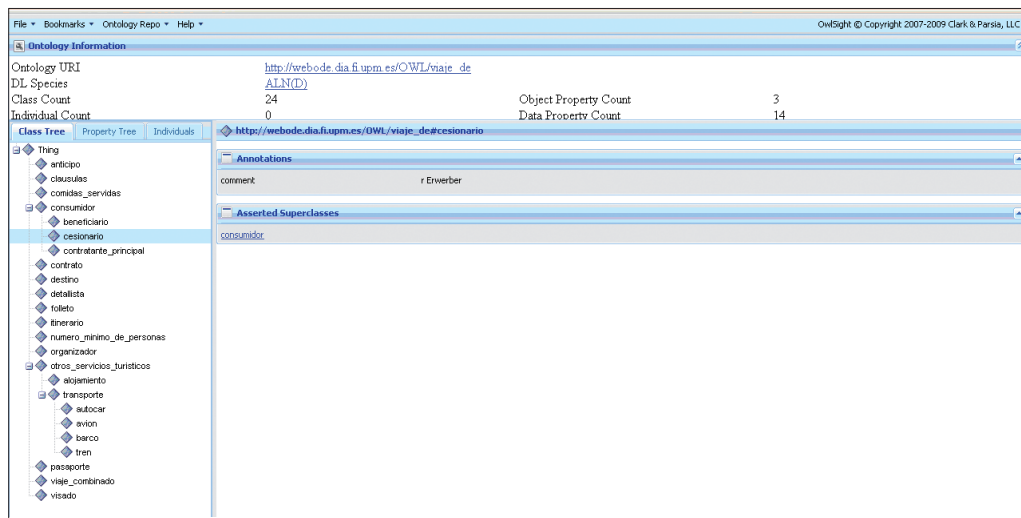


Figure 4. Package travel ontology displayed by OwlSight.

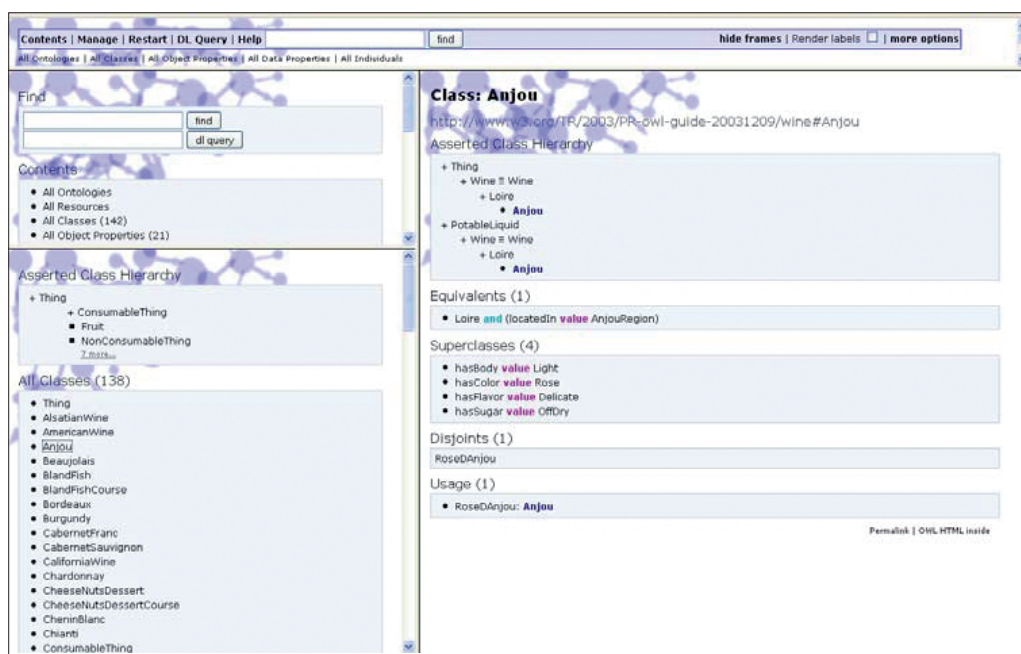


Figure 5. Wine ontology in Ontology Browser.

when a class is selected, the class hierarchy is shown, as well as the related properties and the other classes that are on the same level, that is, those that depend on the same superclass as the one selected. Other labels, for instance those for representing the lexicalisation of the concepts in other languages, are also shown. Figure 5 shows an example from a wine ontology, in which the class Anjou is displayed.

SWOOP⁵ is an ontology editor which is meant for rapid and easy browsing and development of OWL ontologies. It has a web browser-like look and feel: hyperlink based navigation across ontological entities (address bar URL changes accordingly); history buttons (Back, Next, etc.) for traversal; and bookmarks that can be saved for later reference. These features, along with the simplicity of the application, justify why it could be useful for ontology-based terminology teaching. Figure 6 shows our ontology in SWOOP.

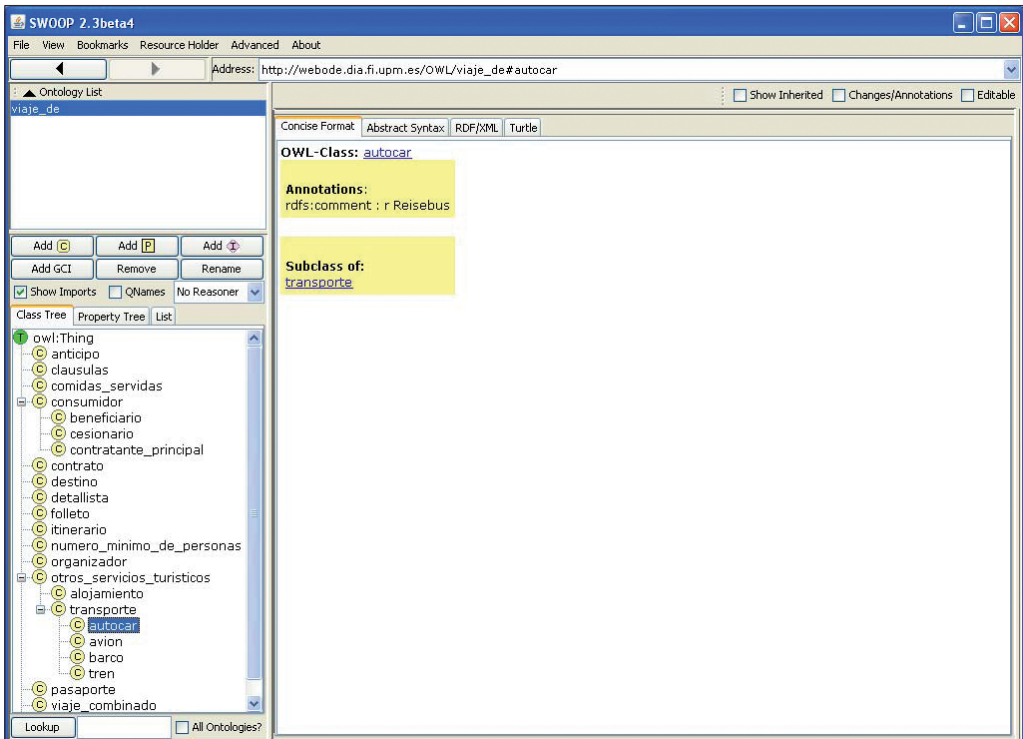


Figure 6. Package travel ontology in SWOOP.

⁵ <http://www.mindswap.org/2004/SWOOP/>

WebODE,⁶ as we said before, is a web application based on METHONTOLOGY. Although it is aimed at building ontologies, we can also use it as a browser, thanks to its form-based and graphical user interfaces. We will explore its possibilities in the next section.

c) *Presenting the Concepts and Terms of the Domain to be Studied Through the Different View Options of an Ontology Browser or Editor*

WebODE offers several options regarding the visualisation of ontology components. On the one side, our package travel ontology can be viewed as a tree-like structure, where we can see all the classes that have been inserted, as well as its subclasses. When we click on a concept, we can see a description of it: in this case we have used that space to insert the gender of the corresponding term in German. We can observe an example in Figure 7.

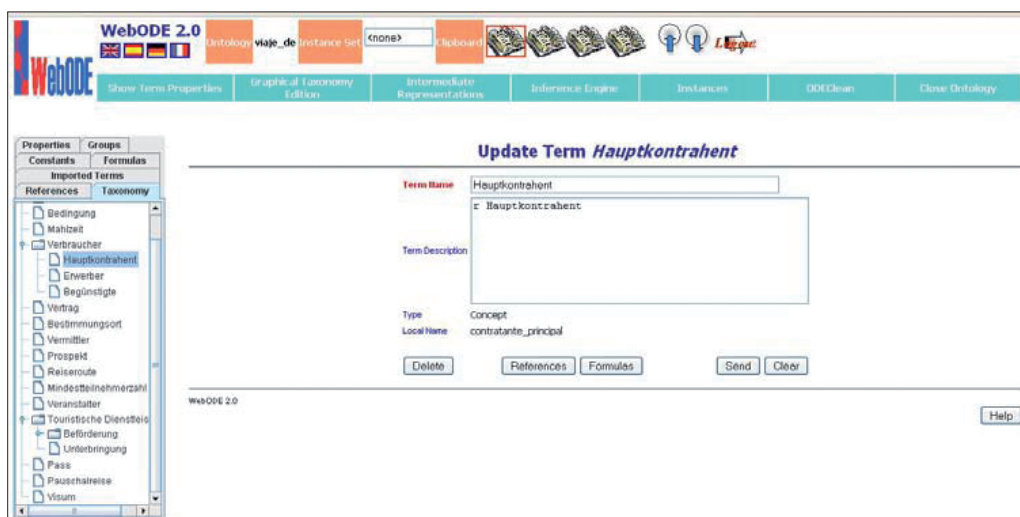


Figure 7. View of a concept in our package travel ontology.

Another possibility WebODE offers is to view the ontology through a graphical editor. This is a much more visual presentation which could help students to better remember the terms and relations to be learnt. As mentioned

⁶ <http://webode.dia.fi.upm.es/WebODEWeb/index.html>

before, this can trigger associative ways of processing, reflecting and analysing information. Figure 8 shows a graphical view of our ontology.

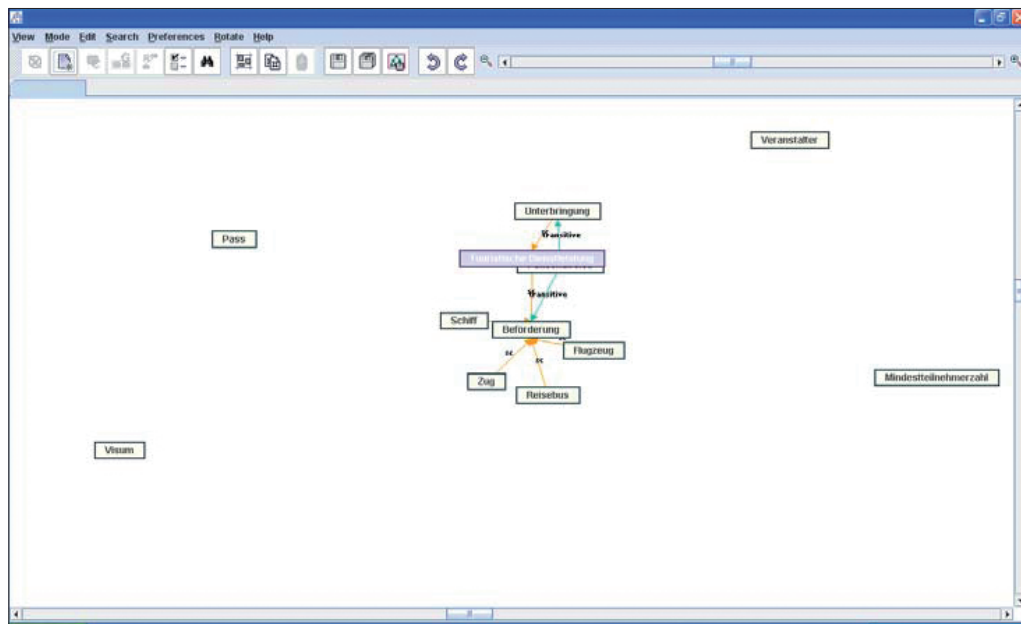


Figure 8. Graphical interface in WebODE.

d) Carrying out Various Activities on the Basis of the Concepts and Terms Stored in the Ontology

We can reinforce the concepts and relations (hence, the terms) presented in class by doing a number of exercises containing those terms: gap-fill sentences, matching terms with definitions, grouping terms in categories (for example, “Group all the terms that represent tourist services”, “Underline the terms that represent types of consumers”, etc.).

In order to help students remember what they have learnt, they will be provided with print graphics and diagrams of the ontology (obtained from WebODE), tree-like lists of the terms, and a concept glossary containing the concepts, class attributes, instance attributes, and relations.

CONCLUSIONS

Ontologies have proven to be a valuable resource in areas such as terminology and education. In this regard, we consider that they could be successfully used to teach terminology in a LSP class, so we have demonstrated how it could be carried out: among the numerous ontology browsers and editors that exist nowadays, there are several of them whose features and simplicity would be ideal for learning purposes. The proposal presented in this paper would complement other more traditional methods of teaching terminology, but we consider that this conceptual approach could considerably help students to learn new terms, in a more associative and reflective way.

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WRITING ABSTRACTS: TECHNOLOGICAL APPLICATIONS FROM A CORPUS-BASED STUDY¹

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ABSTRACT: Abstracts, which constitute a secondary genre based on the Research Paper (RP), have often been analyzed in order to observe how information has been rendered for translation or contrastive analysis purposes. However, in this genre, as in many others, “while there is a wealth of descriptive research, generally speaking, the information is not directly amenable to applied endeavours” (Rabadán, 2008: 103). The aim of this paper was to describe the methodology and the tools devised by the ACTRES research group to bridge the transition between linguistic description and procedural information. The first step of this process was to design a small special corpus of scientific abstracts, the BioAbstracts_C-ACTRES. The macro and microlinguistic characteristics of this corpus were analyzed in order to find the most prototypical rhetorical, grammatical and lexical features of this genre. Then, we identified the “anchors” (Rabadán: in press) relevant for the native speakers of Spanish. Finally, a prototype of a writing application, the *Scientific_Abstract_Generator*, has been designed. Still under development, it aims at helping native Spanish users who are non-linguist field experts, to write scientific abstracts in English.

Keywords: scientific abstracts, genre studies, corpus-based studies, contrastive studies, text generator.

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INTRODUCTION

For a scientist presenting his/her work successfully to the research community is a top priority. If it implies overcoming difficulties in cross-linguistic written communication it can also become a distressing experience. ACTRES (<http://actres.unileon.es>) research fills in a niche which has been neglected in other research programs and tries to cater for a pressing need of non-linguist users: to make available English-Spanish bilingual aids for written communication addressed to speakers of Spanish as a first language.

These writing aids are envisaged as user-friendly computer applications termed 'generators' that will enable non-linguist users to make correct decisions on the basis of validated corpus-based contrastive research. These applications will consist of a useful and usable interface giving access to i) textual-linguistic guidelines and, ii) terminological information.

This paper sets out to present the tools and the methodology used to obtain the empirical data that will feed our application prototype. We will concentrate on abstracts, a type of metatext that functions as the first and foremost introductory tool of research work in science.

METHODOLOGY

In the design of this application prototype the linguists' task has consisted in completing the first of the phases in the construction process of a text in natural language for the communication of specific purposes: the planning (Jordán, 1992: 7). Subsequently, the designer has been provided with the linguistic information necessary for the second phase: the generation itself.

During the planning we have analyzed the meaning, use and function of abstracts (López et al., 2007: 10), because, as Baker (1993: 237) states, correspondence in meaning amounts to correspondence in use. Therefore, our methodology is applied using the most useful tool we have in linguistics: a computerized corpus, which allows us to describe real utterances within a communicative situation.

We built a specific purpose corpus, according to pragmatic criteria. In selecting our texts, we considered the representativity and availability of the abstracts; in other words and according to Nwogu (1997: 121), the abstracts were

chosen to ensure a representative sample of the language of members of the discourse community. Availability, on the other hand, refers to the ease with which abstracts constituting the corpus can be obtained.

As we are interested in the acceptability of abstracts by the other language discourse community, we built a corpus, the BioAbstracts_C-ACTRES, which can be described as comparable, bilingual, synchronic and annotated; first, because it is based on fifty abstracts originally written in English and fifty in Spanish; second, because the sample texts were chosen by publication date; particularly, only those abstracts published in the last decade were considered for inclusion in the corpus; and third we marked the rhetorical structure of every abstract in order to describe their similarities and differences in their construction.

In order to compile the English comparable corpus we started our search on the Internet; and in this sense, several Internet sites contain links to scientific community databases. However, in a second stage, we restricted our search to those robust search engines such as Medscape selection, for instance, which select abstracts and Research Papers depending on their scientific validity, importance, originality and contribution to the scientific community, in the case of the example we are offering, to the medical specialty. Medscape selection criteria could be called into question; nevertheless, each title included in it has to meet one of the following criteria:

- F) expert opinion of pre-eminent clinicians and researchers (...);
- G) named as one of the nine English-language international general medical journals whose full-time editors are members of the International Committee of Medical Journal Editors;
- H) inclusion on a 1994 internal JAMA (Journal of American Medical Association) journal list;
- I) a journal impact factor greater than 2 as ranked by the Institute for Scientific Information's Journal Citation Reports;
- J) and high readership scores determined by PERQ (Pharmaceutical and Health Care –related promotion research) and published on Medscape.

Further criteria we used affected the journal impact. In this sense, the Institute for Scientific Information (ISI) ranks journals according to their impact in the scientific community and this is the main criteria used for our corpus compilation. Only those abstracts published in journals with greater impact were selected.

Regarding the Spanish comparable corpus, international impact could not be used; however, those journals included in the ISI were chosen.

As for the procedure for analyzing the corpus Bhatia (2004) proposes a comprehensive procedure: the multidimensional and multi-perspective research methodology. Its basis is the study of texts from three complementary viewpoints: the textual, the socio-cognitive and the social space. According to this author this kind of analysis should account for a combination of *text-internal* and *text-external* features, such as rhetorical, cognitive and lexico-grammatical elements, and text production and interpretation by their discursive communities respectively.

The approach adopted in this study is purely generic in its first stage. The texts are analysed basically within their socio-cognitive space, that is to say, as communicative events expressed through rhetorical resources. In a second phase, with applied purposes, we have also dealt with the textualization of certain lexico-grammatical features, i.e. the analysis of the textual space.

The Socio-Cognitive Space of the Bio_Abstracts_C-ACTRES Corpus

Abstracts are defined by ISO 214-1976 (E), as an “abbreviated, accurate representation of the contents of a document, without added interpretation or criticism and without distinction as to who wrote the abstract” (Gläser, 1995: 97); that is to say, this type of abstract has been derived from a fully elaborated text by condensing its relevant information, the RP.

There are two basic types of abstracts, informative or RP abstracts, and descriptive. RP abstracts constitute a well-defined genre with definite attributes and a unique style; it has to be brief, accurate, objective, complete, and intelligible, and it has to be presented in the same format of the RP in order to facilitate the skimming of the RP. Descriptive abstracts help “readers understand the general nature and scope of the RP... but they do not go into a detailed step-by-step account of the process involved” (Lorés, 2003: 74).

Sometimes, informative abstracts are the only piece of writing that readers can read. Thus, they have become a key to the content of the whole text. Moreover, because several journals publish only abstracts as a source of quick information and orientation, in some cases, the informative abstract is the only piece of published writing. Therefore, a well-written abstract becomes increasingly important in directing readers to articles of potential value (López et al., 2007: 8).

Our corpus shows that the informative scientific abstracts analyzed include the four sections, which are divided into moves (“meaningful units realized by linguistic means which fulfil a communicative function”) (Biber *et al.*, 2007: 23) and steps (small rhetorical units moves can be divided into) (see Table 1). The different combinations of sections, moves and steps compose the *rhetorical structures*.

Table 1. Rhetorical elements of scientific abstracts and their most prototypical rhetorical structure (in bold).

Section 2: INTRODUCTION	
Moves	<i>Steps</i>
Background information (HP)	Established knowledge in the field OR (MP)
Review related research (HP)	Main research problems (-)
New Research (C)	Previous research AND/OR (LP)
	Limitations of previous research (MP)
	Research Purpose AND/OR (HP)
	Main research procedure (LP)
Section 2: MATERIALS AND METHODS	
Moves	<i>Steps</i>
Data collection procedure (C)	Source of data AND/OR (MP)
	Data size AND/OR (C)
Experimental procedure (C)	Criteria for data collection (HP)
	Research apparatus OR (-)
	Experimental process (C)
Data-analysis procedure (LP)	Data classification AND/OR (LP)
	Analytical instrument/procedure (MP)
Section 3: RESULTS	
Moves	<i>Steps</i>
Consistent observation (C)	Overall observation AND/OR (MP)
	Specific observation AND (HP)
	Accounting of observation made (C)
Non-consistent observation (-)	Negative results (-)
Section 4: CONCLUSION	
Moves	<i>Steps</i>
Specific research outcome (C)	Indicate significance AND/OR (C)
	Limitations AND/OR (-)
	Interpret (LP)
Research conclusions (HP)	Implications OR (MP)
	Further research (-)

This qualitative analysis is accompanied by a quantitative one (Upton & Connor, 2001). Following Suter's quantitative approach (1993: 119) the moves and steps of our corpus are classified as:

- 6) compulsory moves and steps (C): appearing in between 100% and 80% of the moves;
- 7) high priority moves and steps (HP): between 80% and 60% of the moves;
- 8) medium priority moves and steps (MP): between 60% and 40% of the moves;
- 9) low priority moves and steps (LP): between 40% and 20%;
- 10) occasional moves and steps (-): appearing in less than 20%.

C, HP and MP in English and Spanish, combined as in the most frequent rhetorical structures (see Table 1, in bold), have been selected for the design of the first version of the *Scientific_Abstract_Generator*.

The main principle underlying this choice is one of the most relevant features of genre, its *prototypicality*, i.e. the conventional character of its texts, the regularities affecting its discursive structure (at a macrotextual level) as well as its lexico-grammatical characteristics (at a microtextual level). The individuals of a discourse community, who have a prototypical image of it, are able to associate each text to a certain prototype thanks to the recurrence of the intra and extratextual elements. Hence, the choice of the most prototypical elements is the basis to build the generator.

The Textual Space of the BioABstracts_C-ACTRES Corpus

After analyzing the socio-cognitive space we have studied the lexical, grammatical and syntactic elements that compose the textual space of our corpus. For the lexical data we have used *WordSmith* version 4.0 (Scott, 1996), a software kit that contains *WordList* to elaborate frequency and alphabetical word lists, and *Concord* to place the search word in its contexts.

We isolated those linguistic structures and elements which were representative in terms of frequency from the following types: clause type, lexico-grammatical characteristics of clause elements (subjects, verb features, complement types...) and relevant semantic features (technical terms,

subtechnical words...). For example in the Introduction for the move *New Research* we were able to isolate four different structures to express this semantic unit (see Table 2).

Table 2. Lexico-grammatical analysis of Introduction: New Research.

1. The aim of	our current/ present	study	was	to	[infinitive] - Research verbs: <i>investigate, determine, examine, identify, establish...</i> ;	the	[noun]
	the current/ present						
	this/ the						
2. The purpose of	this/ the				- Evaluative verbs: <i>evaluate, assess, test, measure;</i>		
3. The / Our aim					- Comparative verbs: <i>compare.</i>		
4. We			aim				

**THE APPLICATION PROTOTYPE:
SCIENTIFIC_ABSTRACT_GENERATOR**

Scientific_Abstract_Generator is an application prototype devised for its on-line use. It has been built by using html, Javascript and Php. It consists of a textual and a lexicographic module, which can be used simultaneously at every writing stage.

The Textual Module of the *Scientific-Abstract_Generator*

The textual module consists of a combination of drop-down menus for each move plus a *Help* section.

To use the generator the writers have to click first on the section and then on the move (see Fig.1), where they are offered a drop-down menu with several lexico-grammatical options and authentic examples from the corpus. In addition it includes some writing guidelines, which appear in the *Help* next to each move. As the prototype is aimed at non-linguists, the guidelines need to be easy to follow for experts in fields other than Linguistics and/or Computing.

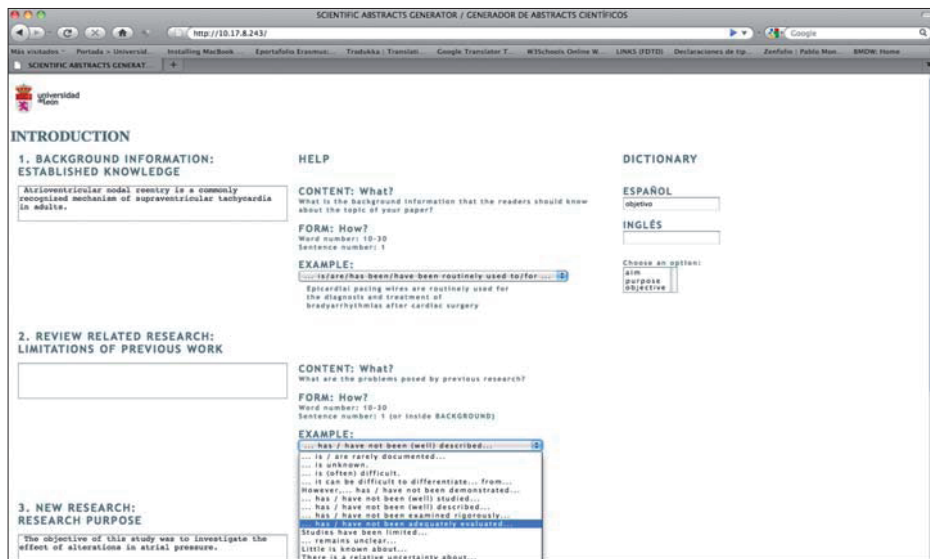


Figure 1. Components of the *Scientific_Abstract_Generator*.

The Lexicographic Module of the *Scientific_Abstracts_Generator*

For the elaboration of the glossary (see Fig. 1), we have followed Yong and Peng's proposal (2007). These authors consider the lexicographic work as a communicative task incorporating the user in the dictionary general configuration.

Since it is designed for native Spanish users it is an electronic unidirectional bilingual Spanish–English glossary that uses translation equivalents. It is conceived of as a production-oriented tool with pedagogical purposes (Hannay, 2003: 145), to help users to write a specific textual genre. It is also specialized, because it only focuses on the terms necessary to deal with a specific matter (Bowker, 2003: 154). However, we have not separated technical from semitechnical terms. Hence, in this study independently of their origin –whether they belong to a specialized language or they are used in general language–, those lexical units carrying out a specialized and restrictive meaning were considered candidates to be included in the lexicographic module.

CONCLUSION

The prototype we have presented is the result of collaborative work between linguists and computing engineers, which constitutes the core endeavor of the ACTRES research group.

An innovative feature is the use of empirical data obtained from the BioAbstracts_C-ACTRES corpus. English and Spanish data have been analysed for prototypical features following Bhatia (2004) and contrasted in order to identify cross-linguistic ‘anchors’ (Rabadán: in print). The information gathered has been used to feed our ‘generator’ prototype with grammatical choices, terminological expertise and rhetorical guidelines that work in conjunction with basic, useful and usable computer tools. Thus, a Spanish-speaking scientist lacking expert writing skills will be able to produce a linguistically acceptable and correct abstract in English.

Forthcoming work will concentrate on the anchors so as to further improve the usefulness and applicability of our analysis.

Although the generator is still at an early stage of development, and refinement and testing is still pending, it will have an impact in both the ways Spanish science is presented globally by making cross-linguistic written communication more efficient and more affordable.

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SECTION 4
TECHNOLOGY AND LANGUAGE CORPUS

MONOFUNCTIONALITY IN PEDAGOGICAL DICTIONARIES: THE PAIR OF “MCDGr-ALGr” FOR SPANISH SPEAKERS

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ABSTRACT: The monofunctionality postulate in bilingual lexicography is interpreted in pedagogical terms as a bipartition into a passive and an active dictionary. Thus, the aim of this paper is to present a model pair of pedagogical dictionaries applied to the almost “terra incognita” of learning Greek as a foreign language for Spanish speakers: the Greek monolingual coordinated dictionary and the Greek active lexicon pair.

Keywords: Computer Assisted Language Learning, Greek Monolingual Coordinated Dictionary, Greek Active Lexicon, Monofunctionality.

INTRODUCTION

Linguistic proficiency in a foreign language (FL) is based on, among others, six main aspects: the syntax, the grammar, the lexicon, the semantics, the phonetics and the pragmatics. Although we consider that all these aspects are interdependent and equally important, we will focus mainly on the lexicon. We have to note that this preference does not mean in any case that we adopt a purely lexicon-centric approach, yet the purpose of this paper is to study new perspectives on pedagogical lexicography for FL vocabulary learning¹.

Studies in vocabulary learning strategies (VLS), the use of which is indisputably crucial in FL learning (Sanaoui, 1995), have enlightened the role of the dictionary use. Dictionary use is documented in the VLS taxonomies as a decisive factor in the cognitive and metacognitive process (Oxford, 1990; Schmitt, 1997; O Malley & Chamot, 1990; Gu & Johnson, 1996) and as a major knowledge source (Nation, 2001), given that the dictionary is an effective means, through which students can comprehend, produce and learn a new language as well as evaluate themselves.

¹ We use the term vocabulary *learning* and not *acquisition*, following the distinction of Krashen (1981), according to which the first correspond to the foreign language and the latter to the mother language learning process.

Although researches concerning the use of dictionary as a VLS in FL learning unanimously agree that dictionary use provides a significant pedagogical benefit to the FL learners (Kojic-Sabo & Lightbown, 1999; Knight, 1994; Atkins & Varantola, 1997; Luppescu & Day, 1993), there is no such conformity regarding what type of dictionary to use.

Thereupon, we will outline the *monofunctionality* postulate, which should be taken into account by all pedagogical dictionaries, and we will propose a dictionary pair model predestinated for Spanish learners of Greek as a foreign language; the Greek monolingual coordinated dictionary **MCDGr** and the Greek active lexicon **ALGr** (Papadopoulou, 2010).

MONOFUNCTIONALITY POSTULATE

Much ink has been spilled over the question whether a pedagogical dictionary has to be monolingual or not. In the review on vocabulary learning bibliography conducted by P. Y. Gu (2003) a clear preference to monolingual dictionaries is reported (Hartmann, 1991; Herbst, 1990; Baxter, 1980). On the one hand, ardent promoters of monolingual dictionaries charged bilingual pedagogical lexicography with encouraging the tendency of the students to translate literally between L1 and L2. On the other hand, the defenders of bilingual lexicography stand, such as G. Thompson (1987) and J. Tomaszczyk (1983). The former claims monolingual dictionaries for their circular definitions, the latter propose the use of bilingual dictionary as a contrastive tool between L1 and L2, based on the habits and preferences of the FL learners, and both stress the necessity to improve bilingual dictionaries, as we do.

Once we have adopted the stance of bilingual pedagogical lexicography, we have to scratch the surface of how a bilingual dictionary should be. Two parameters that we explicitly take into account are the *direction* and the *function* of the dictionary, as Kromann, Riiber and Rosbach (1991) point out. On the one hand, the direction concerns the user of the dictionary and therefore its nomenclature, as the necessities of the language A speakers are different of those of the language B speakers. On the other hand, the function concerns the purpose that the dictionary aims to fulfill, which can be either the expression in L2 or the comprehension of the L2.

Thus, in our case, where we focus on the learning of Greek as a FL, the dictionaries that are needed are the following:

- GR→SP: Comprehension by Spanish speakers of Greek as FL
- SP→GR: Expression by Spanish speakers in Greek as FL

THE MCDGr-ALGr PAIR

The “MCDGr-ALGr” pair consists of the MCDGr and the ALGr dictionary. The MCDGr is the passive dictionary that intends to orientate Spanish learners of Greek as FL in the reception process, namely to understand a Greek text, and the ALGr is the active one, which aims to orientate them to the production process that is to express themselves in Greek language. The different functions that these dictionaries are called to perform obviously imply a different compilation on a theoretical and on a practical level, too, which is clearly reflected both in their macrostructure and microstructure, as we will see thereafter.

MCDGr

The construction of the MCDGr is based on the *Monolingual Coordinated Dictionaries* of X. Blanco (2001). Although this theory aims originally to assist the automatic translation between natural languages, its pedagogical value is considered to be of great importance. The integration of theories, such as of the *lexicon-grammar* (Gross M., 1975), of the *classes of objects* (Gross G., 1994) and the introduction of *domains* for the better semantic classification of the entries (Buvet & Mathieu-Colas, 1999), implies a detailed macro and microstructure. In this way, the dictionary use turns into an exercise in contrastive lexicology, as the user/learner has to follow the morphosyntactic and semantic clues in order to find the precise translation equivalent that (s)he needs.

Macrostructure

The macrostructure of the MCDGr consists of approximately 28.000 simple and multiword lexical units (LU), the distinction of which is based on graphic criteria; if they contain or not separator characters, as i.e. dash or space. We have to mention also that by the term multiword LU we refer to the *quasi-phraseemes* and to the *full phraseemes*, which are described according Mel'čuk (1998) by the formulae ‘a’ + ‘b’ = ‘abc’ and ‘a’ + ‘b’ = ‘c’, respectively.

Main sources of our lemmas have been previous lexicographic works, such as of Papadopoulou (2007), Gavriilidou (1998b), Anastasiadi and Euthymiou (2006), Greek monolingual and Greek-Spanish bilingual dictionaries, diverse web sites and the corpus GFL that we constructed by the official exams during the period 2000–2007 for the Greek language certification organized by the Center for the Greek Language (www.greek-language.gr/greekLang/en/certification/index.html).

Microstructure

The microstructure of the MCDGr is articulated in eight principal parts: (i) the grammatical category, (ii) the orthographic variants, (iii) the morphological and (iv) derivational information, (v) the syntactico-semantic features, (vi) the classes of objects, (vii) the domains and the (viii) Spanish translation equivalence. A representative example of our dictionary is the lemma *δικηγόρος*, the structure of which is the following:

δικηγόρος, N+FLX=N18+Hum+Profession+Law+SP=abogado

The first information of our LUs is their possible orthographic variants. After the orthographic variant, the grammatical category of the lemma is provided (*N*). We have used abbreviations, such as N for nouns, A for adjectives, V for verbs, ADV for adverbs, PREP for prepositions, CONJ for conjunctions, in order to annotate the part of speech. The morphological properties of the lemma follow (*N18*), for which we systematically have encoded the inflection of each lemma, creating totally 762 paradigms² (Papadopoulou, 2010). As far as derivational information is concerned, we provide all the forms of the adjective and adverb degrees.

For the semantic information, we used a seven-fold categorization of syntactico-semantic features, defining in this way the lemmas as human, animal, vegetable, abstract, concrete, locative or temporal. Based on the syntactico-semantic features, we applied further syntactic criteria in order to annotate the class of object of each lemma (Gross G., 1994). For example, the *δικηγόρος* belongs to the class of object of <Profession> (Gavriilidou, 2006; Fuentes, 2008)

² We have created 432 paradigms for the verbs, 282 for the nouns, 36 for the adjectives, 9 for the pronouns, 8 for the numerals and 2 for the articles.

(that is created according to verbs, such as *επαγγέλλομαι* (EN: *profess*) and *δουλεύω* (EN: *work*). Ending, the domains constitute the last semantic information provided (Law).

The Spanish translation equivalence follows all the aforementioned information, as its annotation is lineal. In other words, we had to take into account all the morphosyntactic and semantic properties of the Greek LU in order to provide the corresponding LU in Spanish language.

ALGr

The *Lexique actif du français*³ (LAF) (Mel’čuk & Polguère, 2007) constituted the theoretical framework for the construction of the ALGr. The LAF concerns a specialized dictionary since the description of its lemmas focuses on two main phenomena; the semantic derivation and the collocations. This aspect makes it an ideal assistance for the learners, when they want to express a thought that they have in mind in the FL, as its structure is based on concepts.

The structure of the ALGr is different from the MCDGr as we can see herein below.

Each lemma of the ALGr is not a lexical unit, but a *vocable*. *The vocable of a language L*, as X. Blanco (unedited) defines, *is the set of all the lexical units of the L, the signifiers of which coincide and their signifieds are linked directly or indirectly*. With regards to the microstructure it contains (i) the grammatical information, (ii) the semantic labels, (iii) the actancial structure, (iv) the semantic derivations and collocations (v) examples and (vi) the idioms that include this lemma.

The grammatical information concerns the part of speech and the gender of the vocable (*nombre, neutro*). The resume of the entry is presented below the vocable, which means the semantic labels that correspond to different lexical units of the vocable (I INDIVIDUO QUE EJERCE UNA PROFESION, II INDIVIDUO QUE TIENE CIERTO COMPORTAMIENTO). The actancial structure of each LU is provided first (i.e. Το άτο ο X είναι ο δικηγόρος του ατόμου Y για το λόγο Z). The semantic derivations (i.e. **Δ. famoso y caro** εγαλοδικηγόρος) and the collocations (i.e. **Δ. bueno y**

³ EN: *Active Lexicon of French*.

ΔΙΚΗΓΟΡΟΣ , nombre, neutro	
I	INDIVIDUO QUE EJERCE UNA PROFESION
II	INDIVIDUO QUE TIENE CIERTO COMPORAMIENTO
I INDIVIDUO QUE EJERCE UNA PROFESION	
To άτομο X είναι ο δικηγόρος του ατόμου Y για το λόγο Z	
<p>Connotación ψέμα; ευλωτία Fem δικηγόρος, pop δικηγορίνα Genér νομικός Nombre para Y διάδικος, αντίδικος; ενάγων, κατηγορος; εναγόμενος, κατηγορούμενος; πελάτης el que está haciendo prácticas para ser Δ. ασκούμενος δικηγόρος [X] ejercer la profesión de Δ. δικηγορώ, ασκώ το επάγγελμα ~ [ARdef_{+gen+s} +_{+gen+s}], κάνω [ARdef_{+acc+s} +_{+acc+s}] Y contrata un Δ. βάζω [_{+gen+s}], αναθέτω μία υπόθεση σε [ARdef_{+acc+s} +_{+acc+s}] Δ. joven y sin experiencia δικηγοράκος Δ. incompetente δικηγορίσκος la profesión de Δ. δικηγορία Tiempo durante el que Δ. ejerce su profesión δικηγορία relativo o perteneciente al Δ. δικηγορικός (~ επάγγελμα, ~ γραφείο, ~ σύλλογος) que parece al Δ. δικηγορίστικος (δικηγορίστικη συμπεριφορά) sello que usan los Δ. δικηγορόσημο Δ. que no está bien formado δικολάβος Δ. famoso y caro εγαλοδικηγόρος presentación del Δ. Al juicio παράσταση Δ. que se ocupa de asuntos penales ποινικολόγος Δ. Que defiende los intereses del Y συνήγορος; συνήγορος της υπεράσπισης συνήγορος της πολιτικής αγωγής Nombre para Z υπόθεση Δ. bueno y reconocido διακεκριμένος_A Lugar donde trabaja el Δ. δικαστήριο</p> <p><i>Δεν είναι φυσιολογικό, ένας κρατούμενος για τόσο σοβαρές πράξεις να μην επιθυμεί την παρουσία δικηγόρου κατά την απολογία του.</i></p>	
II INDIVIDUO QUE TIENE CIERTO COMPORAMIENTO	
To άτο ο X κάνει τον δικηγόρο του ατόμου ή του πράγματος Y	
solo masculino	
Jσυνήγορος, υποστηρικτής	
[X] hacer de Δ. de Y κανω το δικηγόρο του [ARdef _{+acc} ~ _{+acc+s} PRO _{pos+gen+s} Y _{+gen}], υποστηρίζω, υπερασπίζομαι [Y] poner a X de Δ. βάζω [_{+gen+s}]	
◊«δικηγόρος του διαβόλου»	
<i>Γιατί ανακατεύεσαι, δικηγόρο σε βάλαμε;</i>	

Figure 1. ALGr: example of a lemma's structure.

reconocido διακεκριμένος_A) of each LU constitute the main body of the microstructure. Representative examples of use are also provided (*Γιατί ανακατεύεσαι, δικηγόρο σε βάλαμε*;) as well as idioms, in which the LU can be met («δικηγόρος του διαβόλου»).

CALL AND THE MCDGr-ALGr PAIR

Computer Assisted Language Learning (CALL) is the cornerstone of today's FL education. CALL and pedagogical lexicography should be understood as two closely associated terms, as learners can enjoy all the benefits of the dictionaries

in the least time-consuming but in the most efficient way. Thus, our lexicographical data have been implemented in the linguistic platform of NooJ (Silberztein, 2003).

NooJ is a linguistic development environment that can be used as a CALL tool (Silberztein & Tutin, 2004), given that its users can navigate through the dictionaries, the morphological and syntactic grammars as well as through the texts of the corpora. The Greek-Spanish NooJ module (Papadopoulou & Gavriilidou, 2010), apart from machine translation applications, it meets the necessities of the Spanish learners of Greek as a FL, too.

Spanish learners can perform queries by defining multiple criteria, such as morphological, semantic or syntactic criteria. For example, they can search lemmas by word form or by semantic labels and to find examples of use that can really help them to the reception or to production process in Greek language.

CONCLUSIONS

The main object of this paper was to present the pedagogical lexicographic pair of ALGr-MCDGr that aims to assist Spanish learners of Greek as foreign language in the frame of CALL. The different structure of the dictionaries has been justified by the fact that each dictionary corresponds to a different function; the MCDGr to the receptive and the ALGr to the productive function. The CALL aspect of our lexicographic work has been also pointed out, providing as environment the NooJ platform.

We have to mention that our dictionaries are noted for their dynamic character, as they can be updated on the macro and microstructure level, on which our future work will focus.

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A GENRE-BASED APPROACH TO THE TEACHING OF BUSINESS ENGLISH: THE GENTT SPECIALIZED CORPUS IN THE LSP CLASSROOM

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ABSTRACT: This paper focuses on the application of the GENTT corpus of specialized genres to the teaching of LSP. This corpus has been developed by the GENTT Research Group and may prove useful to learners of professional languages, providing them with text models and patterns to be used as textual, conceptual, linguistic and terminological reference. The GENTT corpus is a collaborative environment that enables those interested in Specific Language Domains to search, feed and manage the corpus online, making it an effective teaching-learning Internet tool in the area of LSP. This paper includes a number of practical learning activities.

Keywords: Corpora, specialized genres, GENTT corpus, integral methodology.

INTRODUCTION

Since the 1980s, the application of genres to language teaching and, in particular, to LSP (Language for Specific Purposes) teaching, has become one of the most dynamic lines of research in the area of genre theory. Regarding the process of second language acquisition, Bazerman (1988, 2002), Bhatia (1993, 2004) and Swales (1990, 2004), among others, emphasize the importance of understanding communication codes that are specific to the culture of individual fields of specialization and the structure of its genres in order to acquire linguistic expertise in a particular field of knowledge.

The application of genres to the teaching-learning of LSP provides both teachers and learners with culture-dependent codes in their progress towards the acquisition of language for special purposes. Each specialized genre presents its own features, purposes and cultural conventions, facilitating the learning process

to the extent that once learners know how to recognize and use genres (terminology, phraseology, macrostructure, rhetorical devices, etc.), they are able to develop the necessary strategies to cope with new and unfamiliar text types. This is crucial in the context of current Information Society Technologies since genres, as well as reality, are constantly changing, evolving and appearing in new forms. They reflect the evolution of specific socio-cultural interactions and, therefore, of specialized linguistic performance and expertise.

THE GENTT CORPUS OF SPECIALIZED GENRES

The main focus of the GENTT Research Group is the multilingual study of genres in professional legal, medical and technical contexts, three domains that occupy a central position in LSP Teaching and Translation Studies. The GENTT project has focused on mapping the textual performances of these fields and compiling a **multilingual** (Catalan, English, German, Spanish and French) **example corpus of specialized discourse texts** in the fields of law, medicine and technology. Currently the corpus contains approximately 1,000 documents corresponding to the more representative genres of these three fields. The representativeness of this corpus lies in the number of different genre examples it provides, not in the number of texts or words it contains. In fact, the corpus design is intended to create a knowledge management system (a genre tree), similar to terminological knowledge representation systems, structured around the notion of genre, for learners and users of professional specialized genres (Borja, 2005). The GENTT corpus embraces the web 2.0 philosophy, providing a collaborative environment that permits those interested in Specific Language Domains to search, feed and manage the Corpus online. More information about the research group and the corpus can be found at www.gentt.uji.es.

THE GENTT CORPUS AS A LSP TEACHING TOOL

Until recently, language-teaching materials were based mostly on made-up sentence examples. However, the impact of electronic text analysis in the area of Language for Special Domains is rapidly evolving, especially in qualitative terms. Tribble (1997) shows how even small corpora of fewer than one million words can be of considerable benefit in the LSP context. The applications range from high frequency lexis in a specific domain, collocation, colligation and semantic prosody,

grammar and discourse, to the contrastive analysis of lexical items in different domains or contrastive analysis of genres (text-types) in different sublanguages.

Adolphs (2006) points out that a key advantage of the use of corpora within the context of LSP is that they can supply data regarding specific phraseology, word frequencies and distributions in different discourse contexts, thereby providing important information for the language learner and instructor. The context reveals information about the specific phraseology that surrounds a particular word and contributes to its functional interpretation. Word frequency information can be used to design syllabuses based on the needs of particular learners with regard to both the sequence of specific vocabulary items that are being taught and the overall size of the restricted vocabulary that is required to achieve an adequate coverage of a specialized domain. This kind of information derived from corpora provides LSP learners with a list of words that make up the core of the language domain, and that can be used to analyse and deal with numerous vocabulary acquisition problems such as polysemous words, “learnability” or interference with the learner’s first language and decontextualisation.

The structure of the GENTT corpus incorporates “genre templates” which provide formal, communicative and cognitive information about the genres it contains, e.g. macro- and micro-linguistic features, function, rhetorical devices. Previous research in the area has shown that when in possession of this information, LSP learners can progressively improve their professional competence, both linguistic and extralinguistic, through a self-directed learning process. In this paper, we show how the incorporation of both corpus-based and genre-based approaches into text analysis as part of LSP teaching can, in some respects, overcome the criticism that corpus linguistic analyses apply bottom-up rather than top-down methodologies, and that the use of decontextualized corpus data does not take into account the socio-cultural context.

The GENTT corpus also provides learners of professional languages with text models and patterns to be used as cultural, textual, conceptual, linguistic and terminological reference. The possibilities of applying the work on genre-based corpora to LSP teaching are evident. According to Bhatia (1997), work with genres pertaining to the student’s professional background and interests causes learners to develop an explicit desire for conscious participation in the professional community and a feeling of ‘shared ownership’ of their communicative resources, rather than learning words and structures mechanically

and out of context. Bhatia (2008) believes that learners of a specialized language need: (1) to understand the specialist's communication code; (2) to familiarize themselves with rhetorical resources and those that occur in specialized genres; (3) to understand the various socio-cultural contexts in which specialized communication takes place; and (4) to be capable of using specialized genres to respond to new and unexpected situations. All these four skills can be enhanced by using the GENTT corpus and becoming familiar with the textual *mapping* and genre characterizations it provides. Another advantage of this electronic tool, based on genres extracted from real life communication, is that language is learnt in its true context and learning programmes can be designed with very specific needs in mind. It is possible, for example, to design a course focused on the discourse of a particular professional and communicative situation (e.g. the documents of a judicial process which might be of interest for a student of Legal English), treating it as a single genre (a judgment) or as a system of genres that would include all the documents that accompany that particular genre (claim, counterclaim, injunction, judgment, appeal, etc.), and even the oral genres related to them (witness deposition transcripts).

The GENTT corpus permits users interested in restricted domains (legal, medical and technical) to search, feed and manage a collection of texts on line. Participants in the teaching-learning process can manage their own subcorpus in different languages and in different specialized domains, depending on their aims and needs. As stated by Adolphs (2006), in order to build a suitable corpus or subcorpus for specific needs in the LSP context, it is essential to establish the basis for its design criteria, that is, what the *role of the corpus* is; *who* uses it; what the particular *learning objective* is; or what the particular *genre* that is being explored is.

Bearing these factors in mind, a constructive teaching-learning approach based on the concepts of 'corpus' and 'genre' can be implemented, applying a methodology in which learners actively use language in a given context, monitor their own learning progress and develop new skills and competences such as hypothesis testing and data analysis. Teachers act as facilitators of the student's learning process and they can design their own syllabus ranging from very controlled to more complex learning tasks. This approach enhances data-driven learning, allowing learners to explore language data and to derive patterns of language use, which promotes creativity and innovation in the language classroom.

Within this context learners become the centre of the process as they can improve their linguistic and extra-linguistic competences according to their own

learning styles. Teachers, on the other hand, are facilitators of the instruction process and can also tailor their syllabus design towards the needs of a diverse range of learners. Both sides can benefit from the use of corpus technologies by means of a hypothetical deductive approach, helping LSP students learn to communicate effectively and fully understand the realities of the world of specialized discourse.

The following section presents three practical learning activities for business English using the GENTT corpus, in which the role of the teacher is that of a facilitator instructing students in analytic strategies, both rhetorical and textual.

THE GENTT CORPUS IN THE BUSINESS ENGLISH CLASSROOM

In this section we will present different corpus-based activities for the business English classroom. As we have explained, the GENTT corpus is built upon the concept of genre, which constitutes ‘an important source of insight’ (Swales, 1990: 54) into the specialized area. From a methodological point of view, the use of the GENTT corpus in the classroom makes it possible to adopt a data-driven approach. This approach contributes significantly to the development of autonomous learning, enabling students to identify, in an autonomous manner, the characteristic patterns of each macrogenre, genre and subgenre, thereby increasing their capacity of performing critical analysis and decision making; browsing the corpus helps students to develop a ‘researcher-led’ approach.

Business English: a Trendy Cover Term?

Business English has experienced a steady growth in recent decades, becoming the main expansion area of ESP (Hewings, 2002), due to various factors such as the consolidation of English as a *lingua franca* and the expansion of local and national markets, leading to an increase of international business relationships.

Scholars coincide in the difficulty of establishing a clear definition of ‘business English’ (Pickett, 1986; Dudley-Evans & St John, 1998). On the one hand, business English is taught/learnt for a wide variety of purposes; on the other hand, there exists considerable overlap between business English (ESP) and

general English in strictly linguistic terms. Nevertheless, it is important to establish some defining features of business English in order to maximize the pedagogical outcome of the proposed classroom activities. Given the educational setting in which we are working, the most relevant characteristics are the following:

- Effective communication is the main concern (Dudley-Evans & St John, 1998: 73).
- Language depends on status, power and how well established the business relationship is (ibid. 73).
- Seven core communicative events are identified: telephoning, socializing, making presentations, taking part in meetings and negotiating (oral); and corresponding and reporting (written) (ibid.: 63).
- The communicative events above, especially those that require the written form, are carried out by means of specific genres.
- As well as sharing other pragmatic features with general English, assertion and downtoning, as well as checking and confirming (Duckworth, 1995) are key elements of business English.
- Combination of general, semi-specialized and specialized lexis.

Corpus-Based Activities in the Teaching of Business English

Course description

The following activities are designed for the subject 'Business and Administrative English for Translators', which is an optional course that undergraduates in their second year can choose to take. This course is aimed at providing students with some basic knowledge of business communication (correspondence, types of associations, reports, CVs and covering letters). For the vast majority of students, this is the first contact with business English. Furthermore, it is important to bear in mind that most of them are not familiar with corpus methodologies. This implies that some initial familiarization sessions are needed, in which students get acquainted with the terminology of corpus linguistics and with the GENTT corpus itself. The students' average language proficiency is at an upper intermediate level.

Activity 1

Familiarizing themselves with the lexis of business correspondence

Task: Students are asked to use the GENTT corpus to browse the documents available in the genre ‘Letters’, and to identify the most typical lexical elements of this genre.

Aims: To conduct a simple search by genre in the GENTT corpus; to extract the most characteristic lexical elements of the genre.

Methodology: Students work in pairs. A list of instructions is provided, explaining the steps that should be followed to carry out this activity. Once students are logged on to the corpus, they should conduct a search to retrieve the information they are required to find. After retrieving the corresponding documents, it is their task to identify the relevant lexical elements, working in pairs. To conclude this activity, each pair is asked to present their results to the other students in the group.

Teaching rationale: The rationale behind this activity is to provide students with a new approach to the analysis of business language and, at the same time, to encourage them to take an active role in the study of the semi-specialized and specialized lexis of business correspondence.

Activity 2

Identifying collocations typical of business correspondence

Task: Students are asked to find the most frequent collocations in which the word ‘payment’ occurs.

Aims: To introduce concordances; to make students reflect on the relevance of phraseology; to make students aware of genre conventions.

Methodology: Students work in small groups. First, students log on to the corpus. They are provided with instructions for every step. Students need to conduct a keyword search, explore the concordances they retrieve, and analyze these results according to the task. Following this, students are expected to take part in a discussion to share their findings with the rest of the classroom.

Teaching rationale: The motivation for this activity is to raise students’ awareness of the fundamental role of collocations, phraseology and genre

conventions in specialized communication. Ultimately, the rationale behind this activity is to challenge students' restricted perception of specialized language, which is frequently equated with specialized lexis.

Activity 3

Learning to identify expressions of obligation, permission and prohibition in business agreements

Task: Students are asked to identify all the Business Agreements in the corpus and find clauses expressing three particular categories of language: obligation, permission and prohibition.

Aims: To make students aware of the importance of using the right verbs and categories of language to convey the exact meaning and purpose of the agreement.

Methodology: The students are provided with tables containing one or more examples of a particular category of language, with each example being followed by variations on that example (e.g.: obligation clauses using *shall*, *must*, *agrees to*, *undertakes*, *covenants*, *is obligated to*, etc.). The table is introduced by the teacher and discussed in the classroom to highlight the typical dysfunctions in the use of these expressions and the problems a deficient use may bring about. Then students work individually to identify and download the Business Agreements contained in the corpus and create a subcorpus. Working in small groups, they are asked to find examples in the subcorpus similar to the ones provided. Each group works on one category and presents its findings to the class.

Teaching rationale: Commercial litigation frequently has its roots in mishandled contract language and this activity is aimed at raising students' awareness of the importance of seeking consistency in written usages with very specific purposes.

Additional activities, once students have familiarized themselves with the corpus, are the identification of downtoning structures, the mapping of the business genre by means of identifying different subgenres, and the analysis of more complex phraseological units.

CONCLUSION

The GENTT corpus provides a user-centred interface where learners and teachers alike can proceed to a very specific type of text exploitation. Personalized corpora and subcorpora can be designed in order to select adequate texts for a particular teaching issue and their corresponding analysis. Advanced search criteria or classification may also be implemented according to user's needs (by genre, working language, etc.), thus fostering creativity and collaboration among them. With the implementation of these types of tools we are moving towards new expectations in language teaching, that is, towards a dynamic corpus-based and genre-based approach in which learner and teacher collaborate, participate and interact in the process of acquisition of Language for Special Purposes.

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A COLLABORATIVE WEB 2.0 SITE FOR TEXT CORPUS MANAGEMENT: A PRACTICAL CASE

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ABSTRACT: In this workshop the functionality of a corpus-based tool for didactics and translation developed by the GENTT Group will be presented. As a Web 2.0 tool, the site eases the collaborative feeding and quality control of the corpus, as well as the searching and exploitation tasks carried out by a community of users logged on worldwide. The design of the system is based upon a computing architecture that allows a user (learner)-centred development. Its main functions are document management, document classification management, corpus search and subcorpus management. Furthermore, the tool provides users with basic administrative and communicative functions, among others, and with a context-sensitive help function. System administrators can manage documents with access to the whole Corpus, and users can even manage their own personalised corpus. In order to facilitate the Corpus search and exploitation, each document is duly tagged. The tagging process starts as the document is introduced in the system, but it can be specified later on. Tag fields may be open or closed. While the open fields permit users to introduce relevant information, the close fields are categorised or predefined. Among the latter is the GENTT genre tree; a complex hierarchy for which the system has its own taxonomy management tool that allows the addition, deletion or modification of elements through the web interface. However, not only the tree, but all classifications included in the Corpus, are adaptable to the users' requirements and to the social context in which they carry out their teaching, professional or research activities. The system makes it possible to search the Corpus, either through the previously entered classifications and open fields (advanced search), or through keywords in the body of the documents (simple search). Users may also save their search results by creating subcorpora, a highly interesting functionality for those who need to work on specific sets of documents. Moreover, subcorpora can be automatically downloaded, which will be useful for the development of further actions such as their external exploitation by means of other electronic tools. Finally, while the system has been designed mainly to

manage textual corpora for didactics and translation, it will also incorporate external applications to increase the exploitation possibilities in the near future. The fact that the primary focus of the GENTT Corpus is genre within specialised communication makes it a valuable tool for the study of LSP.

Keywords: Corpora, textual genres, Web 2.0, specialised communication, holistic methodology.

INTRODUCTION

The analysis of electronic texts may be considered a breakthrough in the field of language training for it provides participants of the teaching-learning process with many benefits.

Corpora—the quintessential electronic tools for the management of electronic texts—are useful instruments for students, who acquire knowledge and information from several macro- and micro-level linguistic analyses: lexicon, grammar, phraseology, speech as well as documentary, visual and socio-cultural context (Adolphs, 2006: 97). With these tools, students are at the very centre of the process since they become aware of their own progress: they can manage learning, work independently choosing what they want to learn (and what they do not want to learn), and be critical of the materials at their disposal. Depending on the corpus, LSP (Language for Specific Purposes) students might even undertake comparative analyses among texts with different difficulty levels, and among texts from several specialised fields.

Moreover, corpora become valuable resources for teachers, who get support from extensive and objective databases that help them clear up their own doubts, collect feedback and design teaching activities and materials. In addition, teachers put forward language models that are varied, frequent, real and close to native speakers' language (Alonso, 2006: 79). Needless to say that this type of tools has proved especially helpful for evaluating translation and drafting on specialised texts. Bowker (2000: 184-5), for example, puts corpora before other traditional evaluative instruments, such as dictionaries (less dynamic), parallel texts (do not include tools to analyse frequencies and collocations) and experts (who are not always available). Other researchers, such as Wilkinson (2005) and Munday (1998: 15), agree that the use of corpora will be increasingly common in the teaching-learning environments.

Given the aforementioned advantages, and meeting the expectations of the current Information Society, the GENTT Group (based at the Universitat Jaume I) proposes an electronic solution which, built upon a Web 2.0 platform, makes collaborative work on entire documents easier.

The basic functions of the system are useful in LSP training, since texts compiled in the Corpus are drawn from actual sources related to three specialised fields, namely legal, technical and medical. Due to the homogeneity of the contexts, rituals and communicative situations among experts, the texts included constitute specialised genres and standardised documents. Both teachers and students—some of the potential users of the Corpus—face real materials that foster a meaningful, collaborative and autonomous learning. Thus, the teaching-learning process is stimulated by a dynamic tool with *realia*, which allows for the use of a holistic approach to teaching and learning interaction with multiple resources, as well as various strategies, to be intuitively implemented in the field of LSP.

FUNCTIONS

The system distinguishes among various types of users. But this workshop is based on the system administrators' role, and emphasises those most interesting features from the point of view of language learning. There are other functions (such as the users management or that of the translation of the interface), which, despite their interest, have not been discussed here due to the lack of space.

In any case, functions that administrators might carry out in the system are, besides those for basic users (document search, subcorpora creation, and editing of the data created by themselves), the users management, the modification of classifications—especially the genre trees—and the creation of reports on the state of the Corpus. Finally, users with certain privileges might invite others to join the tool.

The following paragraphs summarise the steps to log in to the Corpus, search and download documents, manage subcorpora, prepare reports to feed the Corpus and, finally, manage classifications.

Log in

In order to log in to the Corpus, participants in the LSP learning context (from now on, *users*) should have previously registered. An administrator introducing the users' basic data can run this register. But the easiest way is perhaps through an invitation issued by other users with the proper permissions. Once registered, users can access the system through the login form, and then enjoy several functions depending on the roles (basic users or administrators) that were assigned to them.

Search

Users are allowed to browse data according to their needs. Once they have entered the Corpus, users should go to the general tab **Search**. Search is either simple or advanced, but in both cases users can customise the results display through the "Table settings" option, by selecting columns to be viewed on the results table.

Simple Search

Users should type in the field "Search the documents content" the words on which they want to focus the search. Next, they click on the "Search" button. To refine their search, users can use symbols (+, -) before the corresponding word.

If they click the box "Search by exact word", words in the search field are taken as a single phrase.

Users should click on the "Reset" button for a new search.

Advanced Search

Searches may be narrowed through the "Advanced Search" option by choosing among the categories shown in several drop-down menus: title, author, source, status, year of publication, genre, textual and language.

Subcorpora

The system might save searches, so that groups can later refine and exploit them. This function is carried out through the form that appears below the advanced search, where the general data of the subcorpus are entered: its name, a brief description and the documents to be displayed. After saving the subcorpus, the column of operations in the results table shows the functions of document selecting and deselecting, which can alter the texts included in the subcorpus.

Apart from this, users may add collaborators to see and edit their subcorpus. They just have to enter the tab **My profile** in the management interface “My subcorpus”. By doing so, collaborative work on the selected texts is greatly enhanced.

Downloads

There are two ways users can download the documents they are interested in:

- By clicking on the link with the document code or on the arrow located on the column of operations in the results table. This opens a file with the data of the selected document. Below, there is a link that enables users to download the document in all available formats (plain text, HTML and image).
- In order to download all documents in a subcorpus or those resulting from a specific search, users can choose the format (plain text, HTML and image). They should click on the appropriate option, which is located on the right hand side of the table in question. Document downloading in image format is limited to ten files; otherwise the system might get overloaded and eventually fail.

Introducing Documents

One of the most interesting options for users is to introduce documents in the Corpus. Basic users should go to **My documents** in the tab **My profile** whereas administrators have access also from **Documents** within the general tab

of **Management**. In both cases, the process is to be carried out from the internal tab **Add document**.

First, the document should be uploaded. An HTML version is obligatory, but it is also possible to upload an extra version in image format.

Getting the Document Ready

If the original document is in HTML format, firstly it should be located on your computer, click on “Browse” and, then, click on “Next”.

If the document is in Word or similar format, the Microsoft Office program permits the document to be saved as an HTML file. Once in HTML, it can be uploaded to the Corpus through the procedure explained in the paragraph above.

Provided that the original document is an image (JPG, TIFF, PDF, etc.), it should be converted to a Word file. An OCR program should be used for this. After that, users in order to correct possible mistakes and delete the graphic elements that appeared on the document previous to conversion should revise the document.

If the original document is a web page, it should be saved as a “Web page, HTML only”. Provided that it is a complete web page, it can be downloaded in PDF (some programs, as Adobe Acrobat permit to do it directly) to see the link structure and graphics and, from there, to create the HTML file with the specific text. Procedures in the paragraph above should be followed for this.

In order to add an original document in paper format in to the Corpus, it should be converted to PDF first. From this point on, procedures are the same as the ones described in the above paragraphs.

If they are high quality documents, it is better to scan them at 200/250 pixels. If they are photocopied documents or low quality documents, 300/350 pixels should be enough.

Description of the New Document

Once a new document has been added, its description card should be filled in. There are two types of fields: drop-down fields and text fields. With regard to drop-down fields, the most suitable option to the document in question should be chosen according to the following directions:

- *Publisher*: Person, organization or service that makes the document available. “Companies” are institutions created to conduct private business; “Official body” refers to public institutions; “Individuals” are particulars performing in their private sphere; and “Professionals”, refers to people performing in their professional sphere, but are not part of a company.
- *Related documents*: Relations among documents of the type “translation-original”. More than one document can be chosen when clicking on the “Control” button.
- *Country*: Application country. It is for this reason that a European Commission document, for instance, will be “International” and not “Belgium” (as for Brussels).
- *Genre*: To be reviewed by the Group coordinators. Users can leave this option in blank.
- *Textual type*: It is open to interpretation, always attending to the same criteria.
- *Thematic field*: To be reviewed by the Group coordinators. The Library of Congress Classification is followed.

With regard to text fields, the following instructions should be followed:

- *Title*: It is preferable not to label it (inverted commas, etc.); otherwise when description card is initially viewed, the title appears in red.
- *Author*: If unknown, an interrogation mark should be written (“?”). Provided that author and source coincide, the same should be introduced in both boxes.
- *Source*: If it is a digital document, either the electronic address or the name could be written. If you have both, write name first, and then the address. If unknown, an interrogation mark should be introduced.
- *Year of publication*: If the exact date is unknown, an approximate year should be given.
- *Translator*: Just for a translated document whose translator is known. If unknown, an interrogation mark should be introduced. If inappropriate (because it is an “Original” document) leave it blank.

- *Genre suggestion*: If users think that the added document could be assigned to a genre that is not included in the Corpus yet, a new genre can be suggested. The Group coordinators will review it.

Once all fields have been filled out, click on the 'Save' button in order to save the changes to the data.

Classification Management

Hierarchical genre classification on the so called *trees* can be modified as well as any other classification included in the Corpus. Go to the general tab **Management** and then, go to **Genre Trees** from where the following operations can be done.

Edit

In the toolbar you can find up and down buttons as well as buttons to delete, add, move or merge genres. In order to perform one of these operations, the corresponding genre box should be activated. Furthermore, symbols such as «+» y «—» permit to navigate the tree and to consult its hierarchy easily.

Export

Vocabulary exportation in CSV format is permitted. Click on the "CSV Export" button on the toolbar for this. It is possible to export the whole tree or just part of it, selecting any genre on its corresponding box. In fact, the exportation scope can be narrowed and confirmed on the next window clicking on the "Export now" button.

Compare and Relate

By clicking on "Double Tree" a second tree can be viewed beside the one shown by default. This makes it possible to transport or to relate genres and concepts between two trees or two vocabularies.

After selecting this option, it is necessary to specify whether the same vocabulary or a new one is wanted (to move genres within identical hierarchies,

for instance) in order to relate genres with other features as textual type, language, thematic field or legal system. The two trees should be open at the same time in order to establish the relation, mark the two concepts that are to be related and click on the double arrow button.

Click on the ‘Save changes’ button to save the modifications made to the data and they will be stored in the description card.

CONCLUSIONS

GENTT management tool permits one to feed and exploit a textual corpus in a cooperative and custom-made way.

Since it is an open, flexible and collaborative system, participants can create and design their own work according to their needs and personal learning styles. The Corpus provides, teachers and students alike, with textual patterns that reflect the reality of specialised language, with interesting and updated information about language in context. At the same time, it permits to go from an intuitive learning method to a deductive one in which interaction among creativity, cooperation, customisation and innovation is a constant.

In the near future, other tools related to linguistic analysis and terminology extraction will be added to the Corpus as well as a system for automatic text classification. All these are fascinating and promising challenges for the GENTT Group, as it is the team’s collaboration with other proposals in the LSP context.

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KNOWLEDGE REPRESENTATION IN ECOLEXICON¹

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ABSTRACT: EcoLexicon, a multilingual terminological knowledge base (TKB) on the environment, provides an internally coherent information system covering a wide range of specialized linguistic and conceptual needs. Our research has mainly focused on conceptual modelling in order to offer a user-friendly multimodal interface. The dynamic interface combines conceptual, linguistic, and graphical information and is primarily hosted in a relational database that has been recently linked to an ontology. One of the main challenges we have faced in the development of our TKB is the information overload generated by the domain. This is not only due to its wide scope, but especially to the fact that multiple dimensions are not always compatible but context-dependent. As a result, overloaded concepts have been reconceptualised according to two contextual factors: domain membership and semantic role.

Keywords: TKB, specialized knowledge representation, dynamism.

INTRODUCTION

EcoLexicon² is a multilingual knowledge resource on the environment. So far it has 3,115 concepts and 11,678 terms in Spanish, English and German. Currently, two more languages are being added: Modern Greek and Russian. It is aimed at users such as translators, technical writers, environmental experts, etc., which can access it through a friendly visual interface with different modules devoted to both conceptual, linguistic, and graphical information.

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² <http://manila.ugr.es/visual>

Each entry of EcoLexicon provides a wide range of interrelated information. In Figure 1, the GROUYNE entry is shown. Users do not have to see all this information at the same time, but can browse through the different windows and resources according to their needs.

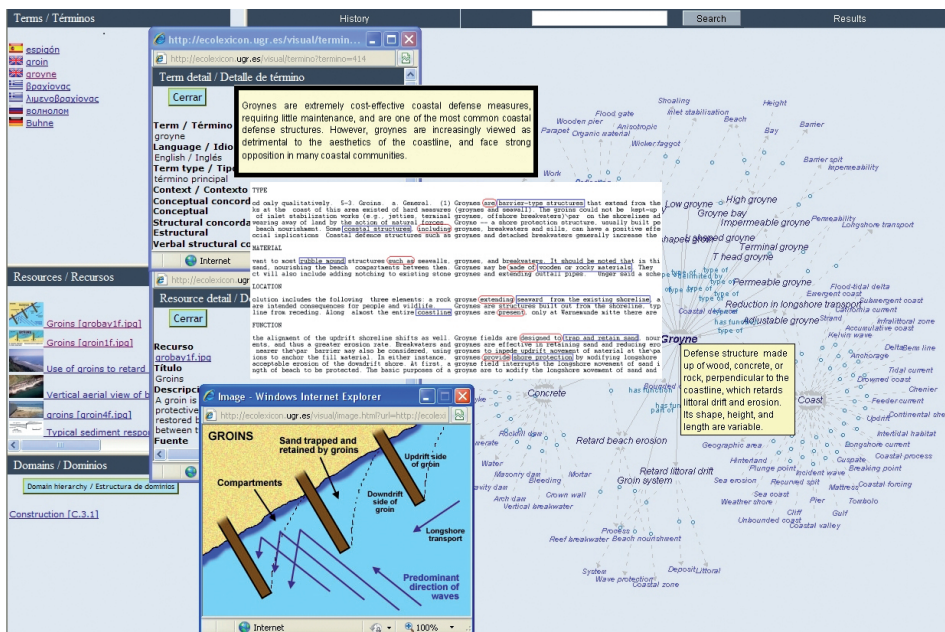


Figure 1. EcoLexicon user interface.

Under the tag 'Dominios' an ontological structure shows the exact position of the concept in the class hierarchy. GROUYNE, for example, is_a construction (bottom-left corner of the window). The concept definition is shown when the cursor is placed on the concept. All definitions follow a category template (Faber et al., 2007) that constrains the definitional elements to be included. The definition for GROUYNE, as a physical artificial object, is the linguistic expression of conceptual relations such as *is_a*, *made_of*, and *has_function*. Contexts (top window with black contour) and concordances (bottom window with black contour) appear when clicking on the terms, and inform different users about both conceptual and linguistic aspects. Graphical resources are displayed when clicking on the links in the box 'Recursos' (in the left-hand margin towards the middle), which are selected according to definitional information. At a more fine-grained level, conceptual relations are displayed in a dynamic network of related concepts (right-hand side of the window). The terminological units,

under the tag ‘*Términos*’, designate the concept in English and Spanish: ‘*groyne*’ and its variant ‘*groin*’, and ‘*espigón*’, respectively (top left-hand corner).

THE ENVIRONMENTAL EVENT

At a macrostructural level, all knowledge extracted from a specialized domain corpus has been organized in a frame-like structure or prototypical domain event, namely, the Environmental Event (EE; see Figure 2).

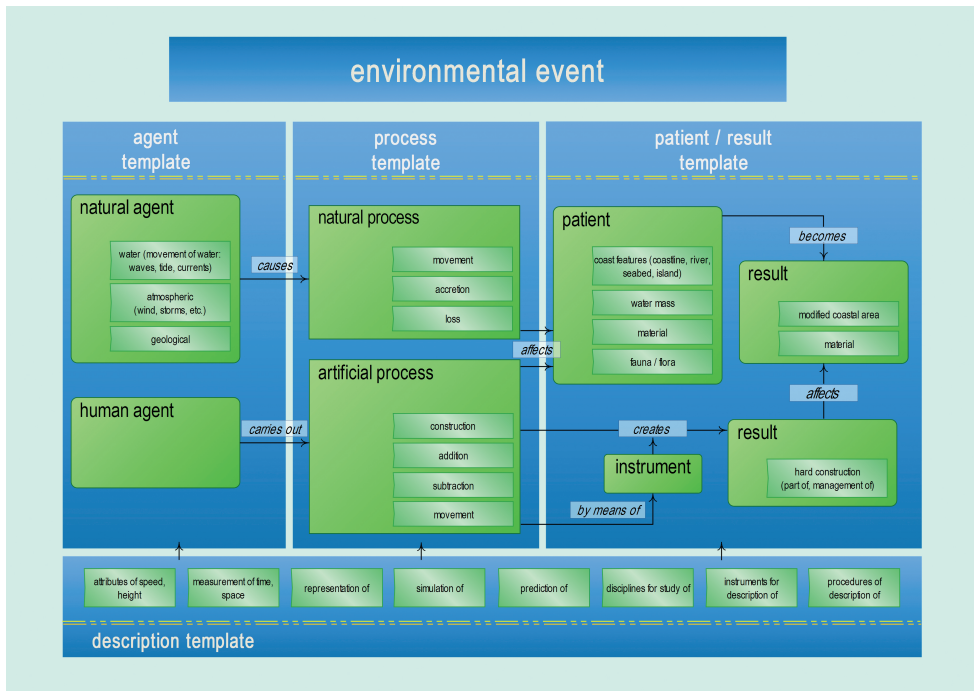


Figure 2. The Environmental Event (EE, Faber et al., 2005, 2006, 2007).

The EE provides a basic template applicable to all levels of information structuring. The Environmental Event (EE) is conceptualised as a dynamic process that is initiated by an agent (either natural or human), affects a specific kind of patient (an environmental entity), and produces a result in a geographical area. These macro-categories (agent → process → patient/result, and location) are the semantic roles characteristic of this specialized domain, and the EE provides a model to represent their interrelationships at a more specific level.

CONCEPTUAL RELATIONS

From a more fine-grained view, concepts appear in dynamic networks linking them to all related concepts by means of a closed inventory of semantic relations especially conceived for the environmental domain. Figure 3 shows the network of GROYNE, associated with other concepts in a two-level hierarchy through both vertical (*type_of*, *part_of*, etc.) and horizontal relations (*has_function*, *located_at*, etc.).

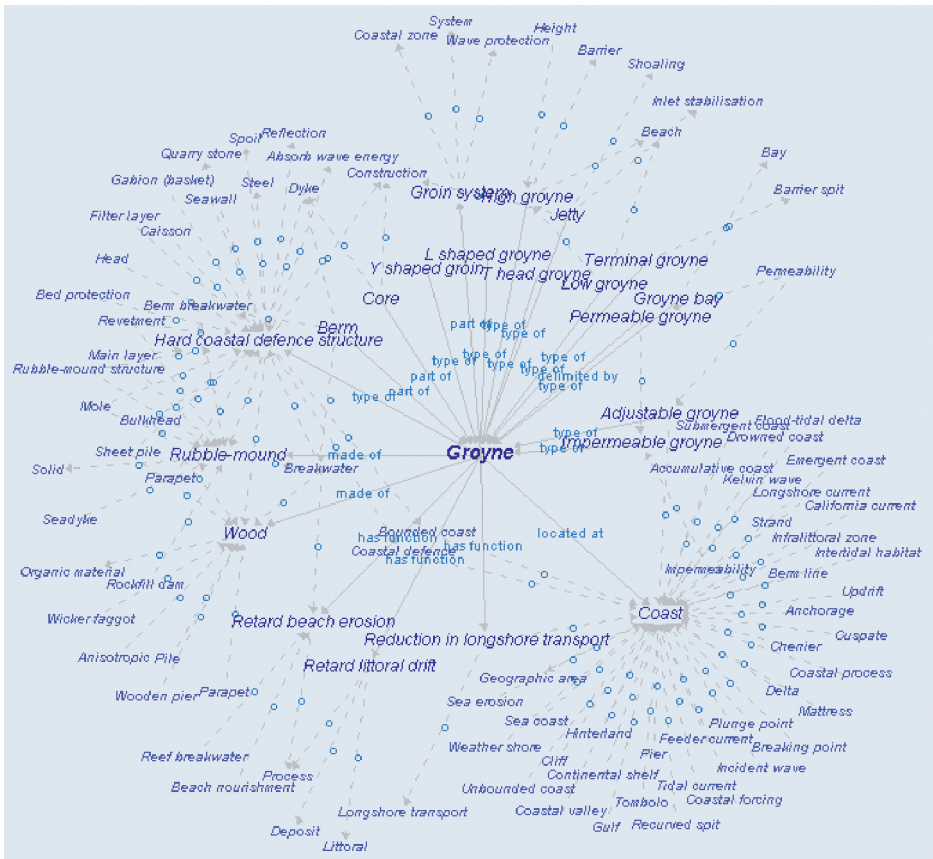


Figure 3. Conceptual network of groyne.

According to our corpus data, conceptual relations depend on concept types and their relational power. Table 1 shows our relation types associated with the elements they can link in each conceptual proposition (León Araúz, 2009; León Araúz & Faber, 2010).

Table 1. Relation types

Conceptual relations	Concept 1	Concept 2	Examples
<i>Type_of</i>	Physical entity Mental entity Process	Physical entity Mental entity Process	Masonry dam <i>type_of</i> dam
<i>Part_of</i>	Physical entity Mental entity	Physical entity Mental entity	Main layer <i>part_of</i> breakwater microbiology <i>part_of</i> biology
<i>Phase_of</i>	Process	Process	pumping <i>phase_of</i> dredging
<i>Made_of</i>	Physical entity	Physical entity	air <i>made_of</i> gas
<i>Located_at</i>	Physical entity	Physical entity	jetty <i>located_at</i> canal
<i>Takes_place_at</i>	Process	Process	Littoral transport <i>takes_place_at</i> sea
<i>Delimited_by</i>	Physical entity	Physical entity	estratosfera <i>delimited_by</i> estratopausa
<i>Result_of</i>	Process	Process	aggradation <i>result_of</i> sedimentation
<i>Causes</i>	Physical entity	Process	water <i>causes</i> erosion
<i>Affects</i>	Physical entity Mental entity Physical entity Mental entity Process Process	Process Entity Entity Process	groynes <i>affects</i> littoral transport pesticide <i>affects</i> water wave <i>affects</i> groyne precipitation <i>affects</i> erosion
<i>Has_function</i>	Entity	Process	aquifer <i>has_function</i> human supply
<i>Attribute_of</i>	Property Property	Entity Process	abyssal <i>attribute_of</i> plain anthropic <i>attribute_of</i> process

Apart from those reflected in Table 1, some of the relations have their own hierarchy. For example, *has_function* and *affects* include more specific knowledge, which is codified through domain-specific verbs: *studies*, *represents*, *measures*, *effected_by* (as functions of mental entities or instruments), or *erodes*, *changes_state_of*, etc (for processes or entities that affect others in a more concrete way).

According to the above-mentioned criteria, concept nature alone determines the potential activation of certain semantic relations, but at the same time, semantic relations determine which kind of concepts can be part of the same conceptual proposition. This gives rise to all these possible combinations (Figure 4).

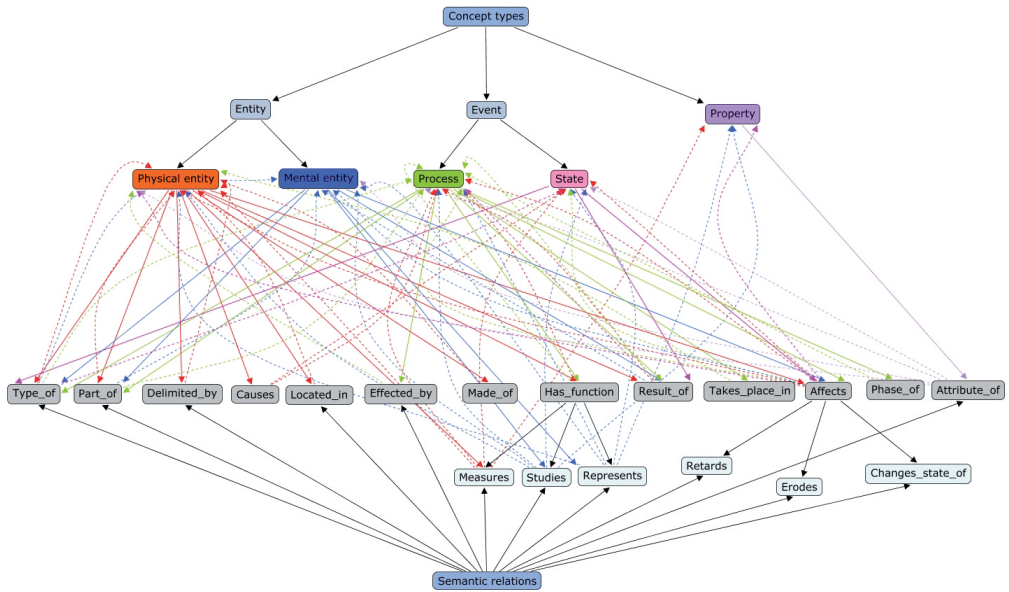


Figure 4. Combinatorial potential.

This combinatorial potential represents certain constraints associated with the natural aspect of concepts. For instance, a process may activate the relation *affected_by*, but only if it is associated with a physical entity. However, if it activates *affects*, it can be linked to entities, events and properties.

THE DOMAIN ONTOLOGY

Data in our TKB are primarily hosted in a relational database (RDB). This widespread modeling allowed for a quick deployment of the platform and fed the system from very early stages. Nevertheless, relational modeling has some limitations. One of the biggest ones is its limited capability to represent real-world entities, since natural human implicit knowledge cannot be inferred. This is why ontologies arose as a powerful representational model, but in our approach, we emphasize the importance of storing semantic information in the ontology, while leaving the rest in the relational database. In this way, we can continue using the new ontological system, while at the same time feeding the legacy system.

Upper-level classes in our ontology correspond to the basic semantic roles described in the EE (agent-process-patient-result-location). As shown in Figure 5, all classes constitute a general knowledge hierarchy derived from each of them. This structure enables users to gain a better understanding of the complexity of environmental events, since they give a process-oriented general overview of the domain:

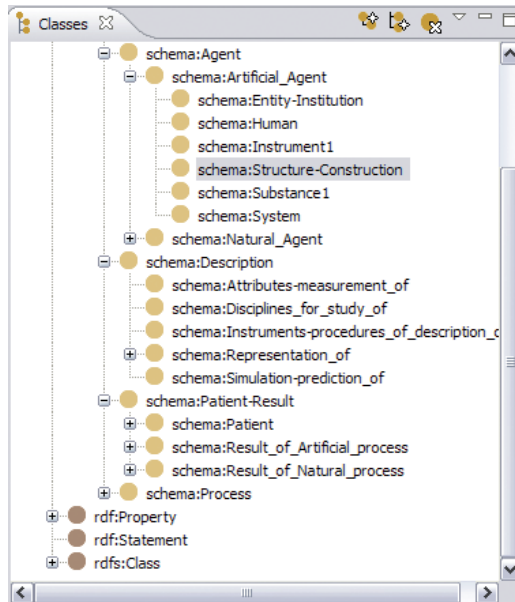


Figure 5. Ontological classes.

Those conceptual relations, specifically conceived for our Environmental TKB, can be enhanced by an additional degree of OWL semantic expressiveness provided by property characteristics. This is one of the main advantages of ontologies, making reasoning and inferences possible. For example, *part_of* relations can benefit from transitivity, as shown in Figure 6.

In this figure, a SPARQL query is made in order to retrieve which concepts are *part_of* Concept 3262, which refers to the concept SEWER. On the right side, DRAINAGE SYSTEM is retrieved as a direct *part-of* relation, whereas SEWAGE COLLECTION AND DISPOSAL SYSTEM and SEWAGE DISPOSAL SYSTEM are implicitly inferred through the Jena reasoner.

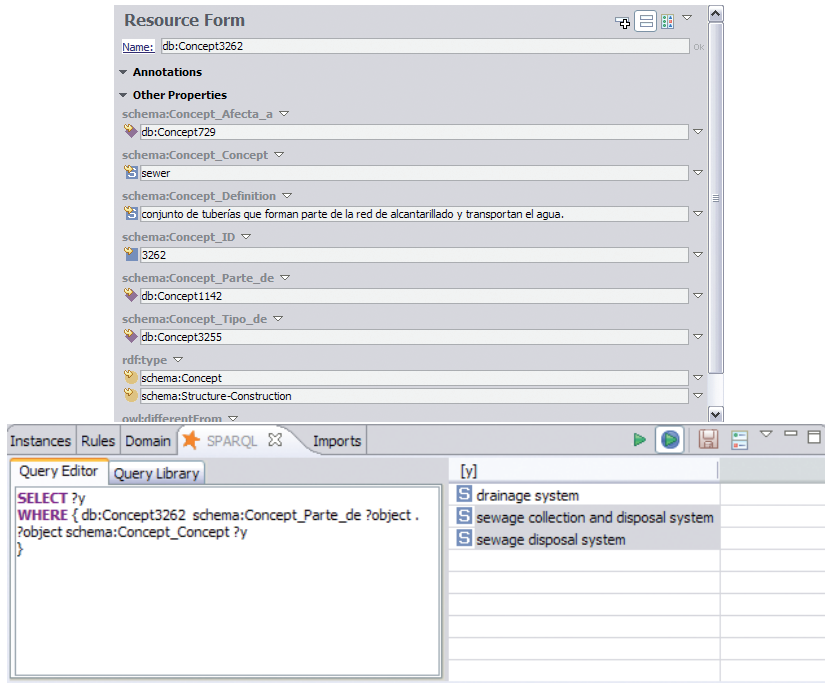


Figure 6. Concept SEWER in the ontology and inferred transitivity.

DEFINITIONS

In EcoLexicon definitions of concepts are elaborated following the constraints imposed by the EE and the inventory of conceptual relations. We group certain similar concepts in different templates according to category membership. For example, the definitional statement of GROYNE (Figure 7) is based on the number and type of conceptual relations defined for the category template HARD COASTAL DEFENCE STRUCTURE.

All coordinate concepts of GROYNE make use of the same template. As functional agentive entities, all HARD COASTAL DEFENCE STRUCTURES need the following information for an overall description: (1) the *is_a* relation marking category membership; (2) the material they are *made_of*, completed with the values of the CONSTRUCTION MATERIAL class; (3) their location, since a GROYNE is not a GROYNE if it is not *located_at* the SEA; and (4) especially the purpose for which they are built.

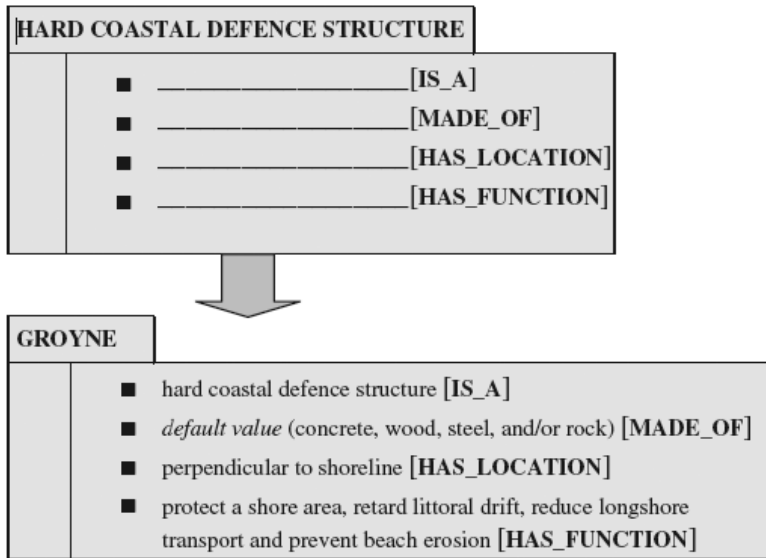


Figure 7. Activation of the HARD COASTAL DEFENCE template in the definition of GROUYNE.

LINGUISTIC AND GRAPHICAL INFORMATION

Apart from concepts, conceptual networks, definitions and terms, EcoLexicon provides the user with additional information: linguistic contexts, concordances and images.

Linguistic contexts help the user achieve a level of understanding of a specialized domain. The linguistic contexts included in the TKB go beyond the relations expressed in the definition. In Table 2, for example, GROUYNE is not only defined as a COASTAL DEFENCE STRUCTURE. Other relevant information is included as well: they are cost-effective and many coastal communities prefer other solutions.

Table 2. Linguistic context of GROUYNE.

Groynes are extremely cost-effective coastal defense measures, requiring little maintenance, and are one of the most common coastal defense structures. However, groynes are increasingly viewed as detrimental to the aesthetics of the coastline, and face strong opposition in many coastal communities.

Three types of concordances are included in each entry of EcoLexicon: conceptual, phraseological and verbal. These concordances allow the users to widen their knowledge from different perspectives. Conceptual concordances show the activation of conceptual relations in the real use of terms. Phraseological concordances help the user in acquiring specialized discourse. Thirdly, verbal concordances highlight the most frequent verbal collocations, which offer, again, both linguistic and conceptual information.


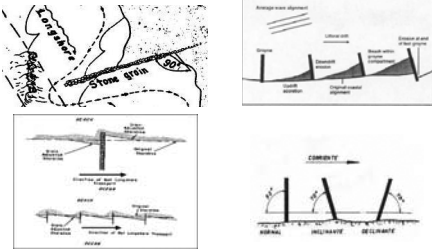
Figure 8 shows the conceptual concordances in the entry of GROUYNE. Linguistic markers such as *designed to* and *provide* explicitly relate the concept to its function, *shore protection* and *trap and retain sand*.

TYPE	od only qualitatively. 5-3. Groins. a. General. (1) Groynes (are) barrier-type structures that extend from the ks at the coast of this area existed of hard measures (groynes and seawall) The groins could not be kept-up of inlet stabilization works (e.g., jetties, terminal groynes, offshore breakwaters)\par on the shorelines ad wearing away of land by the action of natural forces. Groyne -- a shore protection structure, usually built pe beach nourishment. Some coastal structures, including groynes, breakwaters and sills, can have a positive effe ocial implications. Coastal defence structures such as groynes and detached breakwaters generally increase the
MATERIAL	vant to most rubble mound structures (such as) seawalls, groynes, and breakwaters. It should be noted that in thi sand, nourishing the beach compartments between them. Groynes may be (made of) wooden or rocky materials. They ct will also include adding notching to existing stone groynes and extending outfall pipes. Unger said a sche
LOCATION	olution includes the following three elements: a rock groyne (extending) seaward from the existing shoreline, a are intended consequences for people and wildlife. Groynes are structures built out from the shoreline, typ line from receding. Along almost the entire coastline groynes are (present), only at Warnesunde nitte there are
FUNCTION	the alignment of the updrift shoreline shifts as well. Groyne fields are (designed to) (trap and retain sand), nour ents, and thus a greater erosion rate. Breakwaters and groynes are effective in retaining sand and reducing ero nearer the\par barrier may also be considered, using groynes to impede updrift movement of material at the\pa ions to anchor the fill material. In either instance, groynes (provide) (shore protection) by modifying longshore acceptable erosion of the downdrift shore. At first, a groyne field interrupts the longshore movement of sand i ngth of beach to be protected. The basic purposes of a groyne are to modify the longshore movement of sand and

Figure 8. Conceptual concordances in the entry of GROUYNE.

Finally, the third type of contextual information added to the entry are images. These images are selected according to their most salient functions (Anglin et al., 2004; Faber et al., 2007) or in terms of their relationship with the real-world entity that they represent to illustrate the relations a concept can express. Table 3 shows an example of how several images are explicitly related to the conceptual relations expressed in the definition of GROUYNE.

Table 3. The convergence of linguistic and graphic descriptions of GROUYNE.

GROYNE		
Formal role	<ul style="list-style-type: none"> • hard coastal defence structure [is_a] 	
Constitutive role	<ul style="list-style-type: none"> • <i>default value</i> (concrete, wood, steel, and/or rock) [made_of] 	
Formal role	<ul style="list-style-type: none"> • perpendicular to shoreline [has_location] 	
Telic role	<ul style="list-style-type: none"> • protect a shore area, retard littoral drift, reduce longshore transport and prevent beach erosion [has_function] 	

OVERINFORMATION

In knowledge representation, concepts are very often classified according to different facets or dimensions. This phenomenon is widely known as *multidimensionality* (Kageura, 1997). The representation of multidimensionality enhances knowledge acquisition providing different points of view in the same conceptual system. However, not all dimensions can always be represented at the same time, since their activation is context-dependent. This is the case of certain versatile concepts involved in a myriad of events, such as WATER. In EcoLexicon this has led to a great deal of information overload (see Figure 9), which jeopardizes knowledge acquisition.

Yeh & Barsalou (2006) state that when situations are not ignored, but incorporated into a cognitive task, processing becomes more tractable. In the same way, any specialized domain reflects different situations in which certain conceptual dimensions become more or less salient. As a result, a more believable representational system should account for reconceptualization according to the situated nature of concepts. Rather than being decontextualized and stable, conceptual representations should be dynamically contextualized to support diverse courses of goal pursuit (Barsalou, 2005: 628). In EcoLexicon, overloaded concepts are reconceptualised according to two contextual factors: domain membership and semantic role.

Actually, role-based domains by themselves are not sufficient to reconceptualize knowledge in a meaningful way. In the role-free network, WATER appears linked to 72 concepts, whereas in the role-based one, WATER is related to 50. Despite the difference, the concept still appears overloaded, especially once the second hierarchical level is displayed. However, contextual domains, although usually dominated by one role, restrict relational power of versatile concepts in a more quantitative way.

Domain-based Reconceptualization

We have divided the environmental field in different contextual domains according to corpus information and expert collaboration: HYDROLOGY, GEOLOGY, METEOROLOGY, BIOLOGY, CHEMISTRY, CONSTRUCTION/ENGINEERING, WATER TREATMENT/SUPPLY, COASTAL PROCESSES and NAVIGATION.

Our contextual domains have been allocated similarly to the European General Multilingual Environmental Thesaurus, whose structure is based on themes and descriptors, reflecting a systematic, category or discipline-oriented perspective (GEMET, 2004). They provide the clues to simplify the background situations in which concepts can occur in reality.

Domain membership restricts concepts' relational behaviour according to how their referents interact in the real world. Contextual constraints are neither applied to individual concepts nor to individual relations, since one concept can be activated in different contexts or use the same relations but with different values. Constraints are instead applied to conceptual propositions (León Araúz et al., 2009). For instance, CONCRETE is linked to WATER through a *part_of* relation. Nevertheless, this proposition is irrelevant if users only want to know how WATER naturally interacts with the landscape or how it is purified of contaminants. Consequently, the proposition WATER *part_of* CONCRETE only appears if users select the CONSTRUCTION/ENGINEERING context.

As a result, when constraints are applied, WATER only shows relevant dimensions for each contextual domain. In Figure 12 WATER is just linked to propositions belonging to the context of ENGINEERING/CONSTRUCTION:

The number of conceptual relations changes from one network to another, as WATER is not equally relevant in all contextual domains. Furthermore, relation types also differ, which also highlights the changing nature of WATER's internal structure in each case. For example, in the ENGINEERING/CONSTRUCTION context domain, most relations are *made_of* and *affects*, whereas in the GEOLOGY domain, *causes* and *type_of* stand out. *Affects* is also shared by the GEOLOGY domain, but the arrow direction shows a different perspective: in geological contexts WATER is a much more active agent than in ENGINEERING/CONSTRUCTION, where the concept is more subject to changes (patient). Finally, WATER is not always related to the same concept types. In ENGINEERING/CONSTRUCTION, WATER is only linked to artificial entities or processes (PUMPING, CONCRETE, CULVERT), while in GEOLOGY it is primarily related to natural ones (EROSION, GROUNDWATER, SEEPAGE).

Intersection of Role- and Domain-Based Reconceptualization

A new reconceptualization can take place with the intersection of role-based constraints and contextual domains. For example, WATER can be framed as an AGENT (Figure 14) or a PATIENT (Figure 15) or even both (Figure 16) within the HYDROLOGY context.

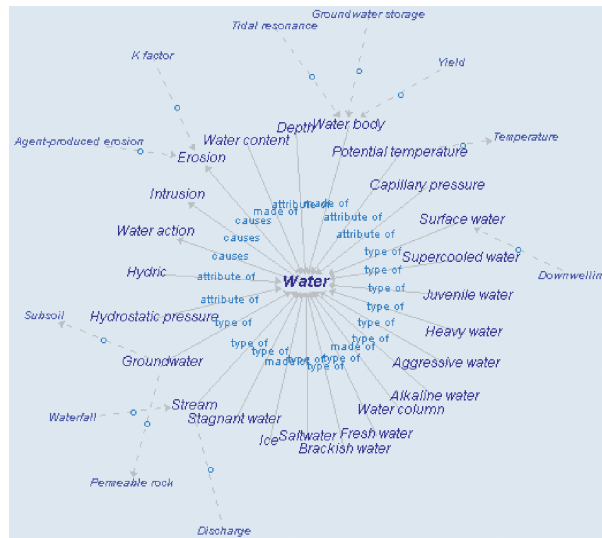


Figure 14. WATER as an AGENT in HYDROLOGY.

Now, the first level appears constrained according to different roles in a particular contextual domain, which at the same time applies for the second level. It is worth noting that Figure 16 only shows hierarchical relations (*type_of*, *attribute_of*, *made_of*), because these are the only ones shared by concepts that can be agents or patients. In Figure 14, however, the representation adds the relation *causes*, typical of agents, and in Figure 15, it adds propositions where WATER is *affected_by*, *measured*, *studied* or *located_at*.

CONCLUSIONS

In this paper we have presented EcoLexicon from several points of view. We have briefly explained the methodology we apply for knowledge representation, and we have shown how all this information is presented to the end user. The internal coherence at all levels of a dynamic knowledge representation shows that even complex domains can be represented in a user-friendly way. EcoLexicon combines the advantages of a relational database, allowing for a quick deployment and feeding of the platform, and an ontology, enhancing user queries. Reconceptualization provides a way of representing the dynamic and multidimensional nature of concepts and terms. It offers a qualitative criterion for the representation of specialized concepts in line with the workings of the human conceptual system. Moreover, it is a quantitative solution to the problem of information overload, as it significantly reduces irrelevant context-free information.

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INTERNET DICTIONARIES FOR SPANISH STUDENTS OF BUSINESS ENGLISH: MONOLINGUAL, BILINGUAL OR BILINGUALISED?¹

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ABSTRACT: In her overview of the state of the art in terminology, Faber (2009) claims that the study of specialised language is undergoing a cognitive shift, which is conducive to a greater emphasis on meaning as well as conceptual structures underlying texts and language in general. This cognitive shift is present in the fact that terminology theories are evolving from prescriptive to descriptive with a growing focus on the study of specialised units from social, linguistic and cognitive perspectives. In particular, she focuses on the application of frame semantics to the description of *coastal engineering* terms. My view is different from the one espoused by Faber and other well-known Spanish terminologists. Instead of a linguistic approach to terminology, I defend a lexicographical approach based on the *function theory of lexicography* (Bergenholtz & Tarp 2003, 2004; see Tarp, 2008, for a review), with illustrations taken from *El Diccionario Inglés-Español de Contabilidad*, an internet dictionary (accessible at <http://accountingdictionary.dk/>) that focuses on three user types: translators of English texts into Spanish; accounting experts; students of Business English and interested laypeople. In particular, I will discuss the extra-lexicographical situation associated with students of Business English with the aim of defending the construction of bilingualised maximising sub-field dictionaries, here presented as adequate teaching tools for Spanish students considering that these lexicographical tools may help them to solve their reference needs in typical communicative-use situations.

Keywords: Business English, Lexicography, Functions, Internet dictionary, accounting.

INTRODUCTION

Pioneers in terminology usually defend the view that terms and semi-terms can be regarded as access points to more complex knowledge structures that

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are populated by many conceptual domains. Since the 1920s there have been different attempts to formulate a set of principles with the stated aim of enhancing specialised communication by eliminating ambiguity from terminology, enhancing standardisation, and establishing terminology as the science of terms.

Moreover, linguists turned terminologists have proposed different approaches to the analysis of specialised communication that are based on attested practices and methods carried out in general language texts. *Socioterminology*, the *Communicative Theory of Terminology*, *Sociocognitive terminology*, and *Frame-based Terminology*, are recent and well-known attempts at studying terms and semi-terms by replicating procedures and methods that have been used in order to describe the characteristics of general words. For example, *Frame-based Terminology* follows Fillmore's Frames in affirming that terminological work needs to make explicit both the potential semantic and syntactic behaviour of specialised language units, and thus focuses "on (1) conceptual organisation; (2) the multidimensional nature of terminological units; and (3) the extraction of semantic and syntactic information through the use of multilingual corpora." (Faber, 2009: 123).

To the best of my knowledge, neither of the above approaches has led to the production of practical reference works, i.e., specialised dictionaries, glossaries, lexica, databases, etc., which have taken into account the principles defended in the above-mentioned views. In other words, the linguistic approaches to the analysis of specialised communication are still making theoretical proposals that are untested in real reference works. We do not know yet whether these approaches will result in reference works that are different from the ones we actually have. What we know is that we are witnesses to a new generation of specialised dictionaries that have been compiled under the tenets of functional approaches with the aim of satisfying the needs of a specific type of user with specific type of problems related to a specific type of use situation. For example, the *Diccionario Inglés-Español de Contabilidad* is an Internet dictionary that follows the theoretical principles of the *function theory of lexicography*, illustrates this recent approach to Language for Specific Purposes (LSP) lexicography, and can be used for upgrading the knowledge and communicative competence of Spanish students of Business/Economics English.

FUNCTION THEORY OF LEXICOGRAPHY

The main tenets of function theory are: (1) lexicography is an actual science independent of linguistics and other disciplines; (2) lexicography is developing and applying new dictionary concepts; (3) lexicography defines its object of study as dictionaries and their production and use, also paying attention to pre- and extra-lexicographical needs; (4) the function theory views dictionaries as objects of use in relation to both extra-lexicographical needs and phenomenological standpoints; (5) the function theory focuses initially on the potential user type; (6) the function theory is initially interested in the extra-lexicographical situation of the potential user; (7) the function theory's point of departure is the extra-lexicographical needs of users before they actually look for assistance in a dictionary (Bergenholtz and Tarp, 2003, 2004; also Tarp, 2008 for a review).

The extra-lexicographical situation associated with teaching and learning Business English demands the production of specialised dictionaries that aim at helping users to satisfy their real needs. The most important ones are the cognitive and communicative needs, served by cognitive and communicative dictionaries. Cognitive dictionaries are adequate for acquiring knowledge about something (for example, about "business"). Communicative dictionaries are appropriate for text reception, text production, and text translation. In other words, students of Business English need lexicographic data about both the subject field and the linguistic characteristics of the lemmas covered, both terms and non-terms. Research by Andersen & Fuertes-Olivera (2009), Fuertes-Olivera & Arribas-Baño (2008), and Fuertes-Olivera & Tarp (2008), among others, have shown that existing Business dictionaries tend to ignore much of the above needs, perhaps because they are not compiled after analysing user's needs in relation to their social situation, in this particular case what students of Business English usually do.

DICTIONARY TYPES USED BY SPANISH STUDENTS OF BUSINESS ENGLISH

Empirical studies on dictionary use have found mixed results regarding which dictionary type students really use and which type they would like to use. On the one hand, students of an L2 tend to use a bilingual dictionary much more frequently than a monolingual one, regardless of the language level and the

specific task. On the other hand, they also show that they are more satisfied with the information found in the monolingual entry, as this usually provides more detailed and precise information. These findings, although they may seem contradictory, are easily understandable in the light of a lack of lexicographical training by most students. Hence, they tend to use bilingual dictionaries because of the following main reasons:

1. The access route to the unknown lexical items is more familiar. Thompson (1987: 283), for example, maintains that the first problem faced by a student is how to access the dictionary, and questions, therefore, why the student should want the information if he or she is unable to find the right lemma.
2. They find equivalents more meaningful than definitions. Despite the benefit of defining vocabulary, students still encounter problems when it comes to understanding the exact meaning of a lemma with no definition in the mother language. In other words, although the processing required by the definition in an L2 is more profound, it is not always more exact, whilst the equivalent ensures that the meaning of the lexical unit is fixed in the memory.
3. Publishing houses like to introduce inter-linguistic contrasting in dictionaries.

In spite of the above conclusions, different analyses of bilingual dictionaries have found that these may be of little help for students of Business English. The dissatisfaction with current bilingual dictionaries is based on three main claims. Firstly, the bilingual dictionary encourages the study of L2 via L1, whereas the monolingual dictionary largely helps to eliminate L1 interference. Secondly, the bilingual dictionary is influential in promoting the illusion of isomorphism between languages through inter-linguistic lexical equivalents. Thirdly, many specialised bilingual dictionaries do not offer adequate ways of disambiguating meaning and, what is more, they cannot be used in most cognitive and communicative situations. A case in point is the *Pirámide Economía y Empresa 2005* (Lozano Irueste, 2005), which is the most widely used business English-Spanish/Spanish-English dictionary, thanks to its distribution by *Expansión* (a respected financial newspaper), a Chilean publishing house, and its seven editions from the year 1989 onwards. Since its introduction in the year 1989, this dictionary has not incorporated any lexicographical improvement (in its 2005 edition it has not even included the lemma *euro* as a currency; it still refers to it

as a prefix in the English-Spanish wordlist or an adjective in the Spanish-English one) and still continues adding equivalents without any meaning discrimination and linguistic information, as example (1) shows:

delinquent (adj. y n.). Delincuente, moroso.

d. (overdue, past-due) account. Crédito vencido hace tiempo, cuenta morosa.

d. list. Lista de morosos, listado de morosos [Hisp.].

d. payments. Morosidad en el pago.

d. return. Declaración morosa.

d. tax. Impuesto atrasado, pendiente de liquidación.
Impuesto en mora

Example (1): Articles in *Pirámide Economía y Empresa 2005*:

The above article is of no help for Spanish users. Furthermore, it may confuse them as these entries include a common mistake in specialised dictionaries of such a poor lexicographical quality: it offers a common word “delincuente” and a term “moroso” as synonyms and equivalents of the English term *delinquent*. They are not synonyms: a *delinquente* is someone who commits minor crimes, whereas a *moroso* is someone who is in arrears with payment. In short, example (1) illustrates the need for different types of dictionaries.

CONSTRUCTING DICTIONARIES FOR SPANISH STUDENTS OF BUSINESS ENGLISH

The analysis of existing business/economics dictionaries indicates that there are important lexicographical differences between typical monolingual and bilingual business dictionaries, even when the same publishing house publishes the dictionary. Examples (2) and (3), taken from the *Oxford Business Spanish Dictionary* (a bilingual Spanish-English/ English-Spanish dictionary, López, 2002) and the *Oxford Business English Dictionary* (a monolingual dictionary, Parkinson, 2005) show that the monolingual dictionary contains pronunciation, intonation, collocations, examples and cross-references to the phrasal verb. The bilingual dictionary only includes equivalents, subject field and gender labels. In other words, the monolingual dictionary is more adequate for text reception, text

production and text translation, whereas the bilingual dictionary is only adequate for text reception.

payout /'peɪə t/ *noun* [C]

a large amount of money that is given to sb:

huge payouts to managers ◊ *an insurance/ a*

dividend payout ◊ *the group's final dividend was*

50 c, taking last year payout to 85 c. → PAY

OUT, PAY STH OUT at PAY *verb*

Example (2): Article in *Oxford Business English 2005*

payout *n* pago *m*; (Bank) amortización *f*

Example (3): Article in *Oxford Business Spanish 2002*

In view of the situation, this paper defends the construction of bilingualised business/economics dictionaries. This genre maintains the identity facets of the monolingual tool, together with an equivalent in L1. The bilingualised dictionary (also called L1-L1-L2 dictionary) functions on the principle that an entry that is supposed to be unfamiliar to the user is better explained in terms that which are familiar to him or her. Empirical tests seem to indicate the effectiveness of such a dictionary. Laufer & Melamed (1994), for example, conducted a study comparing the effectiveness of a bilingualised, bilingual and monolingual dictionary. Learners, who were classified as unskilled, average and good dictionary users, were tested on their comprehension of unknown words and production of original sentences with these unknown words in different conditions. They found that the highest scores were obtained when the bilingualised dictionary was used. This was true in the case of comprehension regarding all groups of students and in the case of production among good and average dictionary users. On the basis of these results, they concluded that the combination of the monolingual information that contains a definition and examples with a translation of the new word into the learner's tongue tended to produce the best results.

A typical example is the *Diccionario Inglés-Español de Contabilidad* (Nielsen et al., 2009), a dictionary that is integrated in a network of accounting dictionaries linked to each other so that users can easily move from one dictionary to another, and that aims at satisfying the needs of three main user types:

1. A primary user group consisting of persons with considerable linguistic competence and small to medium factual competence, made up of semi-

experts such as translators; in other words, its primary function is the translation of English accounting texts into Spanish.

2. A secondary user group, made up of experts within accounting and finance with considerable factual knowledge and small to medium linguistic competence such as accountants and financial analysts; in a word, it has three main secondary functions: production of English and Spanish accounting texts; reception of English and Spanish accounting texts; revision and editing of English and Spanish accounting texts.

3. A tertiary user group consisting of persons with small to medium linguistic and factual-knowledge capabilities such as students of accountancy, students of translation, journalists as well as laypeople interested in financial reporting information. In short, it offers knowledge acquisition concerning English and Spanish accounting issues.

In one way or another Spanish students of Business English may need this dictionary to perform tasks such as translating English texts into Spanish, reading and writing English texts, and even acquire some knowledge about the sub-field of accounting. Below I will enumerate some of the lexicographical features that make this dictionary a typical product of a new breed of lexicographical products that are based on a sound description of the characteristics of specialised communication:

1. Each entry word is described by a definition in English as well as *one* equivalent in Spanish. (2 definitions in (4) and 2 equivalents in (4)).
2. Where necessary, both homonym (in the form of superscript) and polysemy (in the form of Arabic numbers) are used. (numbers 1 and 2 in (4)).
3. The dictionary includes more than 27,000 English collocations and 2,000 English examples translated into Spanish. (collocations in (4)).
4. Where necessary, usage notes, grammar notes and similar disambiguating mechanisms are included in the dictionary articles. (labels IAS/IFRS in (4)).
5. The search engine permits different search possibilities. For example, the functionality 'contains' retrieves all the articles that include the search word, thus facilitating acquiring a whole picture of the term.
6. Where necessary, synonyms, antonyms, and external and internal cross-references are included.

7. Grammar data, including the pronunciation of the English terms.
8. Prescriptive indicators that recommend a variant.
9. The functionality 'source' cross-refers users to Internet texts.

Example (4) is a typical entry:

3 instances *of current price* have been found

current price

< a, the, -s>

precio corriente

1

definition

The current price is the latest price quoted on the stock exchange for a security

precio actual

collocations

- current prices for similar instruments
el precio actual de los instrumentos financieros similares
- the current price of the underlying securities
el precio actual de los títulos subyacentes
- the current price of the underlying shares
el precio actual de las acciones subyacentes

see also:

marker price

sources

IAS 39, paragraph AG 72

IFRS 2, paragraph B6(c)

2 IAS/IFRS

definition

The current price is today's price in an active market for an asset, e.g. properties, commodities or other products or services

precio actual

collocations

- current prices on an active market
precios actuales en un mercado activo
- synonyms
- spot price
- antonyms
- forward price
- sources
- IAS 40, paragraph 45 and 46

Example 4: the entry for **current price** in the *Diccionario Inglés-Español de Contabilidad*

http://www.accountingdictionary.dk/regn/gbsp/regngbsp_index.php?site=9&page=0. Retrieved June 8, 2010.

CONCLUSION

The analysis carried out in this paper stems from the idea that Spanish students of Business English do need conceptual and linguistic information in L2, something that many existing business/economics dictionaries do not offer or offer without adequate access routes or information. On the one hand, some of them restrict themselves to offering very poor information, most of which is completely useless for the user. On the other hand, some of them promote wrong ideas about languages and how they are learned. Hence, most dictionaries used in Spanish universities need to upgrade the theoretical foundations on which they have been constructed. This paper describes the main tenets of the function theory of lexicography and argues that it is adequate for constructing business dictionaries that can help users to acquire the basic knowledge and linguistic characteristics of specific domains. In particular, I defend the construction of bilingualised maximising sub-field dictionaries, such as the *Diccionario Inglés-Español de Contabilidad*, an ongoing project that is being completed by researchers from The University of Aarhus, Valladolid and the UNED with the intention of developing the lexicographical tools of the XXIst Century.

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CREATING A COLLABORATIVE ONLINE LEGAL ENGLISH GLOSSARY IN MOODLE: PROCESS AND PRODUCT

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ABSTRACT: The educational potential of web-based collaborative tasks has recently been explored in various areas of higher education. This paper reports on the creation of an online legal English glossary in Moodle as part of a university ESP (English for Specific Purposes) course. The glossary creation process was analysed, taking into account both teacher and student perspectives, and a taxonomy was developed to study the editing process. Student feedback concerning the glossary task was positive, and most students considered that the finished product was a useful study tool.

Keywords: Glossary, Moodle, collaborative writing.

BACKGROUND

The educational potential of web-based collaborative tasks has recently been explored in various areas of higher education, particularly in content courses that are offered by distance learning (Bruns and Humphreys, 2005). The creation of online collaborative glossaries or encyclopaedias undoubtedly also offers possibilities as a complement to the traditional English language class, since it provides a stimulus for learners to interact and share their knowledge in an online space, while allowing the teacher to maintain a controlled environment. In the area of English for specific purposes, however, the potential of wikis and other collaborative platforms has not yet been fully explored. This paper describes the design and implementation of a collaborative legal glossary writing task as part of a university legal English course, and provides an analysis of the procedure and outcomes.

TASK DESIGN

The task for the present study was designed on the basis of two previous studies carried out with similar groups of students at other Spanish universities. These studies will be reviewed, and then the design of the present task will be outlined.

Review of Previous Studies

Several previous reports are available concerning the collaborative creation of glossaries, encyclopaedias and class reference tools, using a variety of platforms. To take one example, Área (2009) used a Moodle Wiki as the basis for collaborative work on a “virtual encyclopaedia” containing the key concepts for the course. His students worked in groups of 4–6, to write entries for 15–25 concepts. One student wrote an entry, and the other students read it and added any modifications they thought appropriate. At the end of the project, the students presented their encyclopaedias to other groups during the class. Área emphasises the versatility of the Moodle tool, and the records which enable the teacher to track what the students are doing. In his project, the students modified each others’ work and edited the final version, but the teacher did not intervene. The final group products were then evaluated.

In another case study, Lázaro et al. (2009) used Wikispaces with groups of students to create glossaries containing the new vocabulary they encountered when reading legal texts in English. This was intended to encourage learner independence and use of reference works, and to provide a tool for further study. Although these authors emphasise the benefits of collaborative work, and stress the importance of involving students in the creation of material that is useful for their own learning process, they note that in their legal glossary project, students appeared to lose motivation quickly. Moreover, they found that their students were unwilling to correct or comment on each other’s work, and that students expressed insecurity because they felt that the teachers were not correcting their contributions. These authors found it difficult to evaluate the different levels of participation, and they recommend that a clear set of assessment criteria should be established before students embark on the Wiki task.

Design of Present Study

The present case study builds on the findings of these previous studies in order to design and implement the collaborative construction of a legal English glossary by 28 undergraduate students as part of the 6-credit course “Inglés jurídico”. The basic idea was that writing glossary entries would help the students to revise for the final exam, and that it would enable them to practise giving explanations of key concepts in English. The creation of this online glossary was also intended to be useful for the whole class as a reference and study tool. Each student was assigned three key concepts, and shown how to contribute entries (100–150 words per entry) to the Moodle legal English glossary. Students worked during class time to compile three model entries, which were then discussed in terms of contents and language. The final group versions of these were then inserted by the teacher during the class, in order to demonstrate how the platform worked. Various reference works were recommended, and students were also encouraged to draw on the course notes in compiling their entries. The students were required to upload their entries before an initial deadline, and incorporate the changes proposed by the teacher before a second deadline. Before both deadlines, reminders were sent out to students using the Moodle messages function. In terms of assessment, students were given a maximum of five points (5% of the final course grade), for entries that were submitted before the first deadline, fulfilled all the requirements and incorporated the teacher’s suggestions before the second deadline. Students who failed to comply with these requirements were given lower scores. The main practical purpose underlying this task structure was to ensure that the class had a functional glossary of key terms to use for self-study before the final exam. However, the use of strict deadlines for new entries and for editing proved beneficial in general terms, because it meant that the students knew exactly what they had to do to obtain the 5 points, and that there was no loss of momentum.

Regarding the platform, the decision was made to use the Moodle glossary tool for three reasons. First, this tool offers security rather than openness, so that each student could contribute the entries that had been assigned to him or her, and the teacher could make comments and corrections individually, to which the student could then respond. Secondly, the tracking facilities in Moodle allow the teacher to establish easily how much work has been contributed, when, and by whom. Finally, as in other Wiki and glossary platforms, the entries and comments were visible to all the students throughout the process, so that the glossary could

serve its ultimate purpose as a class reference work. It is also useful to note that the Moodle glossary is attractively presented, and can be searched in various different ways by the students, as well as by the teacher using the “reports” function.

RESULTS AND EVALUATION

The procedure and product were evaluated using several different methods in order to obtain an all-round vision of what had been achieved during the task.

Qualitative Results: Student Response

Students were asked to comment on the glossary task in their final evaluation of the course. Most students felt that the task had been useful, and that the final product had helped them to study for their exam. Some students commented that they had enjoyed using the Moodle tool, and felt satisfied that they had helped to create something that was useful for the class as a whole. Despite the clear timescale and structure of the task, one or two students still expressed uncertainty about the quality of other students’ entries, which raises a useful point about the need for fixed deadlines and explicit criteria for teacher intervention.

Quantitative Results: Use and Task Achievement

Using the “reports” function in Moodle, it was possible to ascertain that students had entered the glossary a total of 2352 times. In 2019 of these, the students were viewing the site, in 174 they were adding entries, and in 81 they were updating entries. Regarding the timing of the task, all the students met the first deadline, and all but 2 of them met the second deadline.

Quantitative Results: Editing and Comments

The types of action that needed to be undertaken by the teacher and, subsequently, by the students, were classified using a taxonomy developed for this purpose. Previous taxonomies such as those of Meishar-Tal & Gorsky (2010)

and Pfeil et al. (2006) identified various types of action or change, and several areas of revision, focusing particularly on changes at sentence level and below. In the present case, it was decided to start from further back and make a broad initial classification concerning whether the changes related to content or language. Once this had been determined, the comments on content were classified as intended to correct content, add content or request examples, while the comments on language were classified as referring to spelling, vocabulary or structure (grammar and syntax).

The number of comments requesting change of each kind is shown below in table 1.

Table 1. Type of changes requested.

Type of change requested	Number of entries in which changes requested
Content	
Correct	9
Add	11
Request example	7
Language	
Spelling	13
Vocabulary	15
Structure	20

As far as students' responses to comments were concerned, at the deadline for correction, only 5 entries were left uncorrected (2 students). It was necessary for the teacher to perform these corrections herself, to guarantee the students' trust in the glossary as a study tool.

Quantitative Results: Exam Performance

The final exam for "Inglés jurídico" includes a section in which students are required to define key terminology. The results for this section of the exam for this year's course (2010) were compared with those from the previous year (2009), when no equivalent glossary task had been performed. No significant difference was found between the results, since the average score in the terminology section of the exam was 69.5% in 2010 and 68% in 2009. However, it was noticeable that the students who had participated in the glossary task

(2010) on average gave fuller and more detailed answers in this section of the exam than the students who had not (2009).

DISCUSSION

Although new technologies in themselves do not necessarily drive pedagogy, it has often been observed that material changes in the way courses are delivered are accompanied by broader changes in the underlying paradigms of teaching and learning (Brown, 2005). The move to using ICT in language teaching may involve various types of change, such as a more learner-centred focus, or a more open constructivist vision of learning whereby students are encouraged to construct their own knowledge, and teachers, rather than imparting knowledge, act as guide and support for the student's learning process (Gimeno, 2008). However, not all pedagogical activities involving ICT reflect all these changes to the same extent. It is therefore interesting to analyse in more detail how far the present task bore evidence of a shift in teaching-learning paradigms.

In the case of the present project, several observations should be made. First, use of the online platform helped to build a bridge between the teacher and the students outside the classroom, opening up a new channel of communication. By looking at the initial entries posted by the students, the teacher was able to gain insights into their understanding of the course contents. Where necessary, the teacher asked students to change content, add new information, or add examples of the word in use, and was able to track whether or not the student acted on these comments. In this, there is no doubt that the project contributed to making the course more learner-centred, and provided opportunities for the teacher to give individual feedback, resolve conceptual problems, and provide encouragement where necessary (Gimeno, 2008; Brown, 2005). In a sense, by supporting the learning process in this way, the teacher could be said to have acted as a facilitator, aiding students as they transformed information (course contents, reference material) into knowledge (entries expressed in their own words) (Kershaw & Safford, 1998).

Secondly, although preparation of the entries undoubtedly helped students to construct their own knowledge of key concepts, it was essential for the teacher to be able to correct the final versions that the students produced, not only in order to give individual feedback, but so that the entries would be usable for the rest of the class as a study tool. In other words, the teacher not only had to guide

and sometimes redirect the construction of knowledge, but also had to intervene to ensure that uncorrected entries were not allowed to stay on the site. This meant that the task was fundamentally content-based, and lacked the type of open-endedness that has sometimes been regarded as characteristic of the new learning paradigms associated with ICT (Brown, 2005). It is likely that the highly structured nature of the task, with clear definitions of what was required, two clear deadlines, and teacher corrections, meant that the project was able to avoid some of the problems that previous authors had encountered, such as lack of momentum or insecurity about corrections (Lázaro et al., 2009) and peer-corrections (Meishar-Tal & Gorsky, 2010).

Finally, the students expressed satisfaction after participating in the project, and felt that the end-product was a useful study tool. The fact that the glossary was available to all the students, and all the students had taken part in its construction, helped to reinforce the sense of community in the classroom. It has often been stated that the use of technology has led to a shift from a constructivist to a social constructivist paradigm (Brown, 2005). This project helped to promote the notion of the class as a learning community, as well as providing a resource for all the students to use.

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