Approaches to Specialised Discourse in Higher Education and Professional Contexts

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Edited by

Alejandro Curado Fuentes, Patricia Edwards Rowkowski, Mercedes Rico García

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LIST OF ACRONYMS

AELFE	European association of languages for specific purposes
AHS	Adaptive hypermedia system
CALL	Computer assisted language learning
CEF	Common European framework
CMS	Content management system
DCL	Detailed consistency list
DTEFC	Diccionario de términos económicos, financieros y comerciales
EAHE	European area of higher education
EAP	English for academic purposes
EFL	English as a foreign language
EFRL	Distance learning for French language and literature
ELP	European language portfolio
EOP	English for occupational purposes
ESP	English for specific purposes
EST	English for science and technology
FL	Foreign language
FTA	Face threatening acts
ICT	Information and communication technologies
ILP	Inter-language pragmatics
INELMEC	English for electricity and mechanics
JSP	Java server pages
KWIC	Key word in context
L1	First or native language
L2	Second or foreign language
LGP	Languages for general purposes
LSP	Languages for specific or special purposes
OED	Oxford English dictionary
PDE	Penguin dictionary of electronics
PDT	Penguin dictionary of telecommunications
SHAIEX	Adaptive hypermedia system for languages in Extremadura
TID	Telecommunications illustrated dictionary
TNE	Theory of norms and exploitations
UPM	Polytechnic university of Madrid
VLE	Virtual learning environment
WBE	Written business English

PREFACE

With the change of the century and the millennium—in Portalegre, Portugal, during the scorching month of July, 2000—the Association of Languages for Specific Purposes in Spain (AELFE) decided to broaden its horizons to include other European countries in addition to the existing members, Spain and Portugal. Thus a newer and greater AELFE (European Association of Languages for Specific Purposes) was born with the on-going project of embracing a core matter at the level of higher education: The teaching and research of specialised languages in Europe as a joint effort in developing communicative competence.

In this aim to exchange pivotal information and knowledge across European borders, AELFE's six conferences since then (the last one held in Lisbon in September 2007), have specialised in the underpinning of objectives and purposes in academic, professional and occupational foreign language contexts (university students having to understand lectures in English, European professionals in the service industries having to communicate with foreigners, English-speaking students taking business Spanish, just to mention a few examples). A main concern has been, indeed, the attempt at both comprehending and describing the European scenario for education at these levels of language use. In this line of enquiry, up to 84 delegates to the fourth AELFE conference (Cáceres, Spain, 2005) representing eight countries produced some noteworthy answers to the question of how to cater for specific linguistic / communicative needs in academic and professional contexts.

This monographic volume contains representative work from the aforementioned AELFE gathering. The nine papers selected are studies, presented as chapters on LSP (Languages for specific purposes) from a variety of scopes which corresponded to the six thematic panels of the conference, i.e., discourse analysis, terminology, translation, methodology, cognitive linguistics, and information technology. The collection is therefore segmented according to four broader sections that in turn categorise the central areas of study into chapters. Part I includes two studies on metaphor in specialised domains, Part II has three works that describe specific linguistic traits in tourism, Part III presents three additional chapters exploring the application of information technologies to specific language and literature study, and Part IV provides research on

the role of European legislation for designing qualitative LSP programs at university. Albeit considered as relevant LSP variables, the different approaches tend to develop as different units of study, branching out from a cognitive linguistics angle in Part I to a socio-pragmatic (discourse analysis) perspective in tourism-related communication (Part II), followed by the view of integrating information technology resources with specialised communication development (Part III), and encompassing the observation of specific European policy models for specialised language study (Part IV).

Although other approaches addressing LSP could have been taken into account, as in fact easily detected and contrasted at the different LSP conferences organised by AELFE annually, we, as current editors of this volume, think that the chapters comprised can significantly illustrate practical accounts of current issues, describe relevant applications of theoretical background in specific settings, provide up-to-date accounts on state of the art case studies, and contrast empirical knowledge. In this regard, the papers selected not only constitute valuable information for the study of different discourses in academic and professional environments; furthermore, they contain a convergent salient feature that reveals how theory and practice can come together and be effective. In other words, and in agreement with Dr. Martin Hewings, who introduces this collection, the contributors have provided important research questions and answers from various angles conducive to establishing a direct correspondence between university and post-university discourses, leaving paths open for on-going work to follow and / or broaden what is offered herein.

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Patricia Edwards Rokowski
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Editors

INTRODUCTION

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This collection of papers in the form of chapters is selected from those presented at the "IV International Conference of the European Association of Languages for Specific Purposes" (AELFE) held in Cáceres, Spain, in October 2005. The papers at the conference, and those selected for this volume, had two broad concerns: first, to shed new light on long-standing preoccupations within teaching Languages for specific purposes (LSP); and second, to show how LSP is responding to new external influences.

Among these continuing preoccupations are: the implications of the status of English as the main language for international communication; the wide variety of specialisms that teachers of LSP are called upon to work within; and the relationship between research and classroom LSP practice.

The starting position of much research is the recognition of the significance of English in the world of academic and professional interaction, and therefore the importance of the task of helping students to acquire the language for social, educational and economic reasons. Research reported in the chapter by Guadalupe Acedo Domínguez offers some support for this position, with a majority of her informants, university graduates working in Spanish-based multinationals, frequently using English in the workplace and almost all acknowledging the importance of English at work. Unfortunately, not only does this cohort have a clear perception of the importance of English in workplace communication, it also expresses dissatisfaction with how well university level study of English prepared them for the language demands placed on them in the workplace. I would suggest a similar "gap" would be found if this study were to be repeated in many parts of the world, and it raises difficult questions for those of us teaching English in universities. How best do we equip students with the necessary language skills to meet the challenges of workplace communication? Indeed, given the variety of patterns of workplace communication, is it reasonable for us to try to

achieve this? And how do we balance teaching workplace communication with the need to equip students with English language skills for academic study?; in other words, how do we balance EOP (occupational purposes) and EAP (academic) in higher education?

Given the status of English as the predominant language for international communication, it is not surprising that the majority of the chapters in this volume focus on ESP (English for specific purposes). However, the learning of languages other than ESP is very much on the increase, and this was reflected in the conference papers as a whole, where English was much less dominant. Naturally, given the location of the conference, Spanish was the other language of particular focus, but presentations were also given on the teaching of German and French. The chapter in this volume by Panagiotis Panagiotidis and Panagiotis Arvanitis, for example, focuses on the teaching of French language and literature at the Aristotle University of Thessaloniki in Greece.

The wide variety of "specific purposes" that teachers are called upon to work with has long been a characteristic of the field of LSP. For many of us, this is part of the fascination of the job—i.e., bringing our language teaching skills to different academic disciplines and occupational areas—. It is also important to remember, however, that this is the feature that often discourages "general" language teachers from dipping their toes in the water of LSP. How are we, as mere onlookers on the world of business / engineering/ computer science (etc., etc.), successfully to teach students communication skills in specialist areas? Part of the answer, of course, is that we have to underpin teaching with investigations into language use in these specialisms. The papers in this volume reflect the variety of specialisms, with papers set within the fields of business (Fuertes Olivera), electronics and telecommunications (Cuadrado Esclapez and Duque García), tourism (Martínez-Flor and Usó-Juan; Curado Fuentes and Edwards Rokowski), workplace communication (Acedo Domínguez), engineering (Benavides Cuéllar et al.; Durán Escribano and Pierce McMahon), and the teaching of language, culture and literature for specific purposes (Rico García, Agudo Garzón and Curado Fuentes; Arvanitis and Panagiotidis). The locations of the investigations, too, vary from institutions of higher education to multinational companies.

One of the great strengths of LSP (and to some extent what gives it its great vitality) is that while the context for research and teaching and learning might in a particular case be highly specialised, particular research methods, findings, and pedagogical practice might have much wider relevance. Language research conducted in, say, a company

producing ceramic goods, may therefore have interest for an LSP practitioner in, say, a university department of food science.

A further tradition of LSP that is well reflected in this volume is the underpinning of classroom practice with sound research and theory. The fact that in the world of LSP researchers are also very frequently teachers means that research is normally driven by enquiries related directly to some teaching or learning need. Sometimes this might be to do with a sense of dissatisfaction with current practice or materials—do these really reflect communication within the specialism, or do they truly help prepare students for the real world?—. The chapter by Pedro Fuertes Olivera, for example, clearly derives from some disquiet about the value of specialist dictionaries for Business and Economics. His investigation into metaphorical uses of certain "farming" verbs in this area allows him to make concrete recommendations to the writers of such dictionaries. Although addressing a very different issue, Martínez-Flor and Usó-Juan follow a similar pattern in their work. They first recognise a pedagogical "problem", the need to raise awareness of language for making pragmatically appropriate suggestions in a context in which there is little contact with the target language outside the classroom. The next step is to review current thinking on politeness theory, and drawing on this they provide a detailed instructional framework for teaching politeness in making suggestions in service encounters.

As well as continuing long-standing traditions, the collection also demonstrates how LSP is eager to respond to external influences for the benefit of language learners. The first main influence I wish to highlight is that of initiatives from the European Union. The 1999 Bologna Declaration set in motion a series of reforms towards the creation of a European Higher Education Area (EHEA) by 2010. The stated aim is "to make European Higher Education more compatible and comparable, more competitive and more attractive for Europeans and for students and scholars from other continents" (from the European Commission's Education and Training website—see web reference in bibliography—). These reforms are having an impact across higher education in Europe, including on LSP, and this was reflected in the title of the Cáceres conference—i.e., "Languages for Specific Purposes and the New European Framework: Academic and Professional Contexts"—. The requirement of educational mobility encouraged by the Bologna declaration is clearly a driving force in some of the papers in this volume, and is specifically mentioned as a motivation in those by Martínez-Flor and Usó-Juan, Arvanitis and Panagiotidis, Acedo Domínguez, and Benavides Cuéllar et al. An earlier Council of Europe initiative, from 1997, influenced the work reported by Pilar Durán

Escribano and Joana Pierce McMahon. The European Language Portfolio is

> a document in which those who are learning or have learned a language - whether at school or outside school- can record and reflect on their language learning and cultural experiences. The portfolio contains a language passport which its owner regularly updates. A grid is provided where his/her language competences can be described according to common criteria accepted throughout Europe and which can serve as a complement to customary certificates.
> (Council of Europe's Language Policy Division website, see bibliography).

Although the focus of the European Language Portfolio is rather different from those addressed by the Bologna Declaration, the general aim is similar: To provide criteria for measuring educational (here language) achievement that are shared across Europe in order to facilitate mobility for the social and economic gain of all. Durán Escribano and Pierce McMahon report an example of how the notion of a European Language Portfolio (ELP) can be applied to those studying English for Science and Technology (EST) at tertiary level. They use the descriptors provided by the Common European Framework (CEF) of Reference for Languages to provide a model specifically for engineering students at Spanish universities.

A second major influence—and one having an impact on so many aspects of our lives, of course—is the development of new technologies. We see this reflected in the papers in three main ways. The first is the use of electronic corpus analysis as a method for investigating language of the specialisms. Fuertes Olivera makes use of the WCWBE (Wolverhampton Corpus of Written Business English), a 10-million word collection of English texts from the internet derived from a wide range of countries, in his study of metaphor. It is also worth pointing out here that the chapter by Georgina Cuadrado Esclapez and M[a] del Mar Duque García, while also exploring metaphor, provides an interesting methodological contrast to that by Fuertes Olivera. Theirs is a qualitative study in which the data is not an electronic corpus of text, but instead a number of specialised dictionaries. Through their close analysis, they illustrate not only how metaphors are essential terms in science and technology, but are also important devices in the construction of scientific knowledge and theory.

Second, there is recognition of the growing importance of electronic sources of written text. For some, electronic texts are already a more significant format for reading material than text on paper, and this trend is likely to become more marked as electronic versions of paper-based texts,

and different ways of accessing them, become increasingly available. Of course, we are not simply reading on screen what we would see on paper: electronic texts are often multimodal, have hyperlinks, and may not necessarily be viewed in the page-by-page format of written texts. The consequences of these developments for LSP are yet to be fully understood and clearly need investigation. Alejandro Curado Fuentes and Patricia Edwards Rokowksi contribute to this in their study of the comprehension of advertisements in conventional and electronic form. Their intriguing finding that those students who performed their activities using the corpus of electronic text were more effective at reading comprehension than the students who performed in the paper-based class, if replicated, would seem to have important implications for how and what we teach in LSP.

Third, technological developments are having an impact on the modes of delivery of LSP programs. In general, online material has been used for "distance-learning" with no classroom component in a program, or to supplement a classroom-taught course. Both of these formats are represented in this volume. Panagiotis Panagiotidis and Panagiotis Arvanitis describe the design and development of an e-learning platform and database for the study of French language and literature at a university in Greece. In this program, there is no actual contact between student and teacher, with tutoring to supplement the e-learning being conducted by email. The complexity of the decisions taken in order to maximize learning, given both the opportunities offered by the available technology and the constraints of this technology, will provide valuable information for all those going through a similar procedure. One such constraint faced in such work will be familiar to many of us—that certain administrative or technical decisions on e-learning are not in the hands of teachers themselves—. It may even be that material has to be designed and input by others, meaning that our ability to be flexible and to respond quickly to the changing requirements of students is eroded. This process appears in Mercedes Rico García et al.'s paper, a good example of close co-operation between software designers and teachers, or in Carmen Benavides Cuéllar et al., where the offer of English language learning material, available to engineering students, is impressive. And equally impressive is that the platform that was used allowed material to be added to and edited by teachers with little expert knowledge. Such facilities will be most welcome to all of us (and I certainly include myself here) who wish to exploit the opportunities that online material offers but who lack the necessary skills to implement the more computational side of the work.

Finally, on a personal note, I would like to thank the organisers of the AELFE conference in Cáceres for the invitation to attend. I feel I was

fortunate to be able to observe not only the quality of the research reported, but also the vitality of this research and the teaching of LSP that it informs. Above all, what struck me was the desire by the participants to place the needs of students at the centre of all teaching and research activity. This enthusiasm, professionalism and clear focus on the learner show LSP in a healthy state in Spain and beyond.

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Part I

Metaphor and Specialised Discourse

CHAPTER ONE

METAPHOR IN SPECIALISED DISCOURSE: AN ANALYSIS OF FARMING VERBS IN THE WBE CORPUS AND SOME BUSINESS ENGLISH DICTIONARIES[1]

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1. Introduction

In current lexicographical studies, specialised lexicography deals with the production of dictionaries that examine specific knowledge fields, that do not contain much information about words that are used in language for general purposes (LGP) but on language for special purposes (LSP), and that consist of lexical items used to describe concepts in specific subject fields (Bowker 2003, 154). These lexical items are typically referred to as terms in order to differentiate them from general language words. Assuming that terms have both a cognitive and linguistic function, and that recent LSP meta-lexicography proposes that specialised dictionaries adopt a pedagogical dimension, this study focuses on the presence of some farming verbs in a corpus of written Business English, and in six Business / Economics dictionaries.

Since these verbs are currently used for conceptualising the growth metaphor in Business / Economics, their analysis will show how they behave in the corpus and how they are treated in the dictionaries. This analysis should demonstrate that the dictionaries do not cover these verbs, even though they are employed in the conceptualization of a basic concept in the field of Business / Economics. In other words, in the way they are usually compiled, LSP dictionaries do not seem to meet the needs of some

users, particularly LSP students and practitioners, who require that encyclopaedic and linguistic information be upgraded in line with the tenets of recent lexicographical developments, particularly pedagogical lexicography.

2. Methodology and pedagogical dimension

Opitz (1996) claims that if we consider LSP as a pedagogical concept, current lexicographic practice seems to take almost no notice at all of LSP as a phenomenon and potential field of action. In a similar vein, Tarp (2005, 8) acknowledges that although a large amount of specialised dictionaries have been produced over the past three decades, most suffer from a very low pedagogical quality when compared with their LGP (languages for general purposes) counterparts. He adds that in general it can be argued that this lack of pedagogical value is based on the fact that most specialised dictionaries produced during the last three decades have not taken into consideration the modern theory of lexicographic functions (cf. Bergenholtz and Tarp 2002, 2003, 2004). According to this theory, all theoretical and practical lexicographic work should be based "on the dictionary functions which represent the assistance provided by a dictionary to a specific type of user in solving the specific type of problems related to a specific type of user situation" (Tarp 2005, 8).

LSP learners are typically engaged in acquiring basic knowledge in one or more technical aspects. They tend to be young adults, situated at a later phase of their initial occupational training. In general, they are not total beginners in the foreign language and for them standard specialised dictionaries are of little help, if any, typically because these dictionaries do not aim at concentrating

> on the extra-lexicographic user situations of which two main types can be distinguished: the communication-related and the knowledge-related. The first one is related to communicative situations such as L1 and L2 text production, L1 and L2 text reception and L1-L2 and L2-L1 translation. The second one is related to non-communicative situations where the users for one or the other reason want or need knowledge of a certain type, e.g. linguistic, general-encyclopaedic or specialised knowledge.
> (Tarp 2005, 8-9).

Tarp (2001) states that a dictionary with a knowledge-orientated function is supposed to provide much data about a specific subject field in order to increase the user's knowledge of the subject field in question. For

example, Bannock, Baxter and Davis's *Dictionary of economics* (1987) offers the following dictionary article about growth theory:

> **Growth theory**. The area of economics concerned with the development of models which explains the rate of ECONOMIC GROWTH in an economy. The most important questions in growth theory are about (a) the optimal level of growth (► OPTIMAL GROWTH THEORY), and (b) whether the economic system has a natural tendency to achieve BALANCED GROWTH, a position in which all variables grow at the same rate. If growth in the economy is balanced, it can be shown that $n = s/v$ where n is the rate of growth of the labour force, s the AVERAGE PROPENSITY TO SAVE and v the ratio of capital in the economy to output produced (► CAPITAL – OUTPUT RATIO). For balanced growth to be sustained with INVESTMENT equal to savings and with constant full employment, some mechanism has to exist to cause one of these three factors to change when one of the other two moves out of balance. In the neo-classical (► NEO-CLASSICAL ECONOMICS) approach to growth, it is the capital-output ratio, v, which alters. If, for example, the labour force was growing too fast to maintain full employment with the given level of savings and stock of capital, the capital-output ratio would fall as entrepreneurs switched from employing capital to labour in response to the lower wages that the excess supply of labour caused. The fixed relationship between the three factors would thus still hold.
> In the HARROD-DOMAR MODEL, none of the three variables is endogenous (► ENDOGENOUS VARIABLE) and thus there is no tendency for balanced growth to occur at all. The capital-output ratio is assumed to be fixed by technological factors or by sticky interest rates (► LIQUIDITY TRAP). In models associated with the CAMBRIDGE SCHOOL, it is the propensity to save which is the endogenous variable; in particular, if there is a difference between the inclination for profit-earners and wage-earners to save, growth can lead to redistributions from one group to the other in such a way as to alter the savings necessary to maintain a full employment steady-state growth path. (►OPTIMAL GROWTH THEORY.)
> (Bannock, Baxter and Davis 1987, 58).

In this text entry, we may learn that growth theory is the area of economics concerned with the development of models which explain the rate of economic growth in an economy. The most important questions in growth theory are about (a) the optimal level of growth, and (b) whether the economic system has a natural tendency to achieve balanced growth, a position in which all variables grow at the same rate. In addition, some information on different schools of thought is offered in this example of entry.

Tarp (2001) also comments that for a user that consults a dictionary with the purpose of being assisted in text production or text reception, apart from grammatical data addressed to the word in question, it is only relevant to retrieve semantic data. In other words, learners will be helped in developing their lexical communicative competence if dictionaries cope with the following learning strategies (Bogaards 1994, 38):

- learn completely new lexical units; i.e. new forms with unknown meanings;
- learn new meanings for forms with which they are already acquainted; i.e., new senses for familiar words or particular meanings of combinations of familiar words, that is compounds, verbal phrases, idioms and the like;
- learn relations between lexical units, in terms of form (i.e. morphological relations), but above all in terms of meaning: they have to learn to discriminate lexical units with approximately the same meaning, and to structure lexical fields;
- learn the correct and appropriate uses of lexical units at the level of grammar, collocation, pragmatics and discourse;
- consolidate this knowledge;
- develop strategies to cope with gaps in this knowledge;
- provide the learners/users with all the morphological, syntactical, syntagmatic (especially collocations, multiword units), paradigmatic and pragmatic information that learners need to communicate;

We may infer that a well-conceived pedagogical specialised dictionary should meet two needs: 1. To solve problems that may arise during the communication process; 2. To add to the user's existing knowledge. Hence the specialised dictionary may display a pedagogical function, provided that it offers either communication-related or knowledge-related functions, or both, to the users during the learning process.

Under this theoretical framework, our study first examines the presence of some "farming verbs" in a specialised corpus, the *Wolverhampton Corpus of Written Business English* (WBE) and in six Business / Economics Dictionaries, listed in Table 1-4 and in the bibliography as primary sources.

Secondly, by comparing results, some lexicographic work aiming at upgrading the pedagogical dimension of LSP dictionaries is proposed. Since such farming verbs are currently found as metaphorical terms, it seems adequate to review recent research on the role that metaphor plays in the discourse of Economics / Business, particularly those studies which have adopted a corpus-based methodology.

3. Metaphor in Business / Economics Texts

Recent interest in terminological metaphor stems from the idea that metaphor has two basic functions: (i) It is a conceptual device whose essence is "understanding and experiencing one kind of thing in terms of another" (Lakoff and Johnson 1980, 5); (ii) it has an important aesthetic role, which "produces metaphorical combined names whose motivation can be found in similarities of form, function, and position" (Sager 1997, 29). In the context of specialised texts, both the cognitive and aesthetic functions play a key role: (i) Terms are the result of understanding and naming on the basis of metaphorical scenarios; (ii) the aesthetic value of terms increases motivation and helps users to deal with them.

Regarding the discourse of economics, different recent corpus-based analyses have shown that metaphors are mostly used for exploring specific economic problems and extending economic ideas. For example, Charteris-Black and Ennis (2001) compare the use of linguistic metaphor and conceptual metaphor in a corpus of English and Spanish financial reports published in newspapers during the October 1997 stock market crisis. Their findings point to a great deal of similarity in the conceptual and linguistic metaphors used in the two languages; nonetheless, some differences in the frequency of particular linguistic metaphors are also noticed. Regarding second language learners, Charteris-Black and Ennis (2001) argue that

> the high proportion of similarities in conceptual metaphor use between the two languages are elements to be positively exploited. The fact that largely the same semantic links are made in the two languages should facilitate reading comprehension, while the different lexical realisations ought not to cause readers problems once their attention has been drawn to the specific metaphors at work.
> (Charteris-Black and Ennis 2001, 264-265).

Fuertes-Olivera and Pizarro-Sánchez (2002) use a parallel corpus of economic texts and argue that metaphors are cognitive tools and aesthetic devices which often become terms. They found that Spanish and English speakers deal with similar metaphorical scenarios for conceptualising economic terms (e.g., "inflation" is conceptualised as a "horse", an "engine", an "enemy, and a "robbery"). They also find that expert translators typically resort to literal renderings of metaphorical expressions. This last finding leads them to conclude that literal translations help to produce similarity-creating metaphors, perhaps a rather

common method of spreading technological know-how, scientific knowledge, and terminology.

Charteris-Black and Musolff (2003) have examined both the cognitive and pragmatic/rhetorical dimensions of metaphor in a study of the reporting of the euro in the British and German financial press during the period when the currency was first launched—in the autumn of 2000—. They concluded that there are interesting parallels and differences. The parallelism refers to the near-identical use of all main aspects of the field of up-down movement, and to the use of health / strength metaphors. The differences are mostly found at the rhetorical level: English reporting employs many combat metaphors in which the euro is an active agent. German reporting, however, characterises the euro as a passive beneficiary of the actions of institutional bodies, typically banks and governments.

White (2004) examines how the press handles the question of extreme fluctuation of currency values. He concludes not only that metaphor is an important mode of understanding and a way of structuring experience, but also that certain metaphors may favourably predispose readers towards the acceptance of the argumentation involved. He also notices that

> when the second language learner or the learner of languages for specific purposes grasps the language of metaphorical use within his/her field, the person is not only grasping language in use as language and discourse but also gaining conceptual empowerment, enabling him/her to use the same tools and thereby become more competent in the field in question.
> (White 2004, 83).

The observed insight generally uncovers an interesting notion: That the learner of languages for specific purposes must cope with both language skills and conceptual empowerment. He or she, then, must understand that metaphorical terms are common and, that, thus, these may influence production and reception processes. A step in this analysis is based on the investigation of the behaviour of some metaphorical terms in a corpus and some dictionaries. The analysis may then offer some clues on the type of lexicographic work that should be carried out to upgrade the pedagogical dimension of LSP dictionaries.

4. Results of the study: Business-related farming verbs in corpora and dictionaries

A corpus is any large collection of texts that arises from natural language use. The *Wolverhampton Corpus of Written Business English*

(WBE) is a special purpose corpus concerned with Business English collected from 23 different web sites related to business (Table 1-1).

Text files	Overall
Bytes	69,241,496
Tokens	10,128,219
Types	55,945
Type/Token Ratio	0.55
Standardised Type/Token	35.22
Ave. Word Length	5.08
Sentences	283,258
Sent.length	30.35
sd. Sent. Length	31.41
Paragraphs	88,069
Para. Length	87.23
sd. Para. Length	742.39

Table 1-1: Statistics for the WBE Corpus

The WBE Corpus is an annotated corpus of more than 10 million words; it is a synchronic corpus, including only texts available on the web during a 6-month period in 1999-2000. It is also a monolingual English corpus, which comprises only texts written in English, but no restriction was applied as regards the variety of English used. On the contrary, the WBE corpus deliberately contains a wide range of varieties of English, by including documents from web sites in Britain, USA, Pakistan, Netherlands, Belgium, Switzerland, Hong Kong, etc. It is also a written corpus, i.e., contains only written materials, and only a very small sample of texts are transcripts of speeches.

Thanks to the amount of information available online, the WBE contains a selection from a wide variety of text types. These range from product descriptions and company press releases to annual financial reports, business journals, academic research papers, political speeches and government reports. The texts have been grouped according to the source site. Table 1-1 lists the files in the corpus. The files are grouped according to the site from which they were collected. The table shows the amount of data and the number of files downloaded from each site. It should be emphasised that the locations were correct when the corpus was built, but given the dynamic nature of the web, it is possible that some of them have changed somewhat.

In corpus linguistics, the notion of attested language is very important and implies that “data are not invented for the benefit of a model but rather

that the model emerges from large and representative samples of language" (Charteris-Black 2004, 31). One of the underlying principles of corpus linguistics is that theoretical claims should be based on proven instances of language use. This implies that intuitions about language are measured against attested linguistic evidence. There is therefore "a separation between data and intuition, and intuitions may be modified according to the extent to which the linguistic features identified recur in the corpus" (Charteris-Black 2004, 31-32).

Corpus-based analysis implies the use of electronic searches of a corpus by using automatic and interactive techniques that employ quantitative and qualitative modes of analysis. Qualitative analysis is necessary in the choice of research questions, while quantitative analysis is essential because it provides the basis for judging norms of language use. Charteris-Black (2004) adds that while

> corpus-based analysis may work best when quantitative and qualitative approaches interact, we may still distinguish between those whose primary orientation is quantitative because the focus is on word or phrase forms and those whose primary orientation is qualitative because the focus is on word or phrase meanings.
> (Charteris-Black 2004, 32).

Qualitative analysis is currently identified as corpus semantics, and this type of corpus linguistics holds that "examination of multiple occurrences of words or phrases reveals nuances and connotations that may not be evident when we experience these words or phrases on an individual basis" (Charteris-Black 2004, 33). As regards research into metaphorical language, both quantitative and qualitative approaches are justified. Charteris-Black (2004, 34) claims that qualitative "judgements are necessary initially to establish what will be counted as metaphor." Then, he argues that "quantitative analysis can allow us to measure the frequency of a metaphor in a corpus and to estimate the extent to which a particular metaphorical sense of a word form has become conventionalised" (Charteris-Black 2004, 34).

Finally, a qualitative approach can also be performed to discover the function of metaphors in a particular discourse domain—for example, its connotations—. Since a major finding of corpus semantics is that words and phrases convey evaluations more frequently than is recorded in many dictionaries, it may be adequate to compare findings from the WBE corpus with entries from Business / Economics dictionaries. The aim is to find out if dictionaries also record the metaphorical nature of some terms and their connotations. To carry out this analysis we have focused on some

metaphorical terms, all of them based on farming, currently associated with growth theory: "flourish", "reap", "sow", "blossom", and "plough / plow."

As previously explained, growth theory is the area of economics concerned with the development of models which explain the rate of economic growth. "Growth" implies a process of increase in size, visible, for example, in many farming activities. As a consequence, some English verbs, used in the context of farming, may be used metaphorically in Economics / Business contexts to indicate the rate of growth of an economic activity. Verbs such as "blossom", "flourish", "plough (plow)", "reap", and "sow" are typically used in English literally (for referring to farming activities), and metaphorically (for referring to growth in an economy). A search in the WBE corpus yields some occurrences of such farming verbs (Table 1-2).

	N	percentage
blossom	11	6.4
flourish	51	29.6
plough/ plow	16	9.3
reap	74	43.1
sow	20	11.6
Total	172	100

Table 1-2: Occurrences of some farming verbs in the WBE Corpus

Table 1-2 shows that the so-called "farming verbs" are rather frequent in Business / Economics: there is one occurrence of a farming verb per every 59,222 words. By conventional standards this finding indicates that these verbs may form a kind of lexical pattern in Business / Economics English. Our next step consists in analysing each occurrence to find out if they are used in a literal or metaphorical way (see Table 1-3).

Verb	Literal use	%	Metaphorical use	%	Total	%
blossom.	0	0	11	100	11	100
flourish	0	0	51	100	51	100
plough/ plow	1	17.6	15	82.4	16	100
reap	1	1.3	73	98.7	74	100
sow	10	50	10	50	20	100
Total	12	6.9	160	93.1	172	100

Table 1-3: Literal vs. metaphorical uses of some farming verbs in the WBE Corpus

Examples:

[2] Text example of the WBE Corpus (Literal): "Those fears were countered by the plentiful West African harvest. Cote d'Ivoire expects to reap a record harvest of 1.4 million tones of cocoa beans this year."

[3] Text example of the WBE Corpus (metaphorical): "Not all developing countries can follow India's path. However, they can reap the software rewards of hi-tech jobs, capabilities and income if they learn to combine successful tactics, strategy and vision."

The corpus analysis performed points to three interesting findings. First, the five verbs refer to the same basic economic concept. Secondly, they are rather frequent in this domain; thirdly, an overwhelming majority of the uses attested in the WBE corpus is metaphorical.

My next step is to investigate how these verbs are represented in some Business / Economics Dictionaries: Three sources are monolingual Business English Dictionaries, and three others are bilingual Business English–Spanish / Spanish-English. As shown in Table 1-4, the situation for the farming verbs is very different: Literal uses are not contemplated, and only some metaphorical uses are identified.

	DTEFC (2002)	BSD (1998)	HDB (2004)	ODBE (1993)	LDBE (1989)	DoB (2001)
"blossom" (literal)	X	X	X	X	X	X
"blossom" (metaphor)	X	X	X	X	X	X
"flourish" (literal)	X	X	X	X	X	X
"flourish" (metaphor)	V	V	V	X	X	V
"plow" (literal)	X	X	X	X	X	X
"plow" (metaphor)	V	V	V	V	V	V
"reap" (literal)	X	X	X	X	X	X
"reap" (metaphor)	X	X	X	X	X	X
"sow" (literal)	X	X	X	X	X	X
"sow" (metaphor)	X	X	X	X	X	X

Legend and Key:
X = not found in the dictionary; V = found in the dictionary

1. DTEFC (2002) = *Diccionario de términos económicos, financieros y comerciales Inglés-Español / Spanish-English* (Alcaraz Varo and Hugues 2002)
2. BSD (1998) = *Business spanish dictionary. Spanish-English / English-Spanish* (Collin et al. 1998)
3. HDB (2004) = *Harrap's business dictionary English-Spanish / Español-Inglés* (Alvarez 2004)
4. ODBE (1993) = *Oxford dictionary of business English for learners of English* (Tuck 1993).
5. LDBE (1989) = *Longman's dictionary of business English* (Adam 1989)
6. DoB (2001) = *Dictionary of business* (Collin 2001)

Table 1-4: Literal vs. metaphorical uses of the "farming verbs" in business dictionaries

Example:

[4] Text example of DTEFC (metaphorical):

> **plough/plow back** *v*: reinvertir; invertir los beneficios en la propia empresa ◊ *Plough back £1 m into the business*; V. *rolled up coupon*. [EXP: **plough back profits** (reinvertir los beneficios), **ploughed-back profits** (beneficios reinvertidos), **ploughback** (reinversión), **plowing back of profits** (autocapitalización)

5. Discussion: A proposed design of LSP dictionaries

In line with Bogaards (1996), I subscribe to the idea that the correct use of vocabulary entails not only grammatical features, but also questions of lexical collocation, discourse level, and pragmatic appropriateness. He adds that for both receptive and productive purposes, learners need meaning clarification devices for making the meanings of words clear to them.

The comparison of the results of Tables 1-3 and 1-4 indicates that the specialised dictionaries have not recorded most uses of the farming verbs, although they are rather common in the Business / Economics domain. Regarding metaphorical terms, the above findings lead to the observation of three lexicographic scopes which may enhance the pedagogical usability of the dictionaries.

First, LSP dictionaries should record both the literal and metaphorical uses, no matter how frequent or infrequent these two uses may be. Data from Tables 1-3 and 1-4 indicates that the literal uses of the farming verbs only amount to 6.9 per cent of the total occurrence of the WBE corpus, and that they have not been recorded in any of the six dictionaries analysed. By conventional standards, these findings lend support to the compilers of these dictionaries who have not recorded them, and to those who think—mostly corpus linguistics advocates—that frequency is a key indication for inclusion of an entry in a dictionary, as frequency leads to lexical patterns, usually representing "distilled expert knowledge" (Bowker and Pearson 2002, 19). I am encouraged to disagree with this position because this practice does not seem to favour the process of learning a second language (L2). Meer (1997, 1999) has claimed that the tendency of some learner dictionaries to present sense definitions of highly frequent figurative uses of a word before the less frequently occurring literal meaning is misguiding. He supports this view by indicating that this practice does not alert the learner sufficiently to the fact that the use of a certain word is in fact figurative, and that in the case of numerous words

the non-figurative sense is still there as a synchronic fact, enriching the figurative use with a "by-way-of speaking" dimension.

By exploring Meer's idea, I contend that a well-conceived pedagogical specialised dictionary has to compile both the literal and figurative meanings. The rationale for this idea is two-fold. On the one hand, since learners seem to be shaky and awkward in guessing the meanings of collocations and phrases (Khuwaileh 2001), it can be assumed that the inclusion of both types of meanings will reduce their misunderstanding and confusion when dealing with metaphorical terms, many of which tend to form syntagmatic patterns. On the other hand, metaphorical terms tend to be rendered literally in an L2 (Fuertes Olivera and Pizarro-Sánchez 2002), thus the inclusion of both uses will favour students' decoding and encoding processes.

Secondly, as LSP dictionaries should be corpus-based, they should pay much attention to syntagmatic patterns. Different approaches to the analysis of metaphors and idioms, for example, have emphasised that human beings "store in their brains not just words in isolation, but also sets of stereotypical syntagmatic patterns associated with each word" (Hanks 2004, 246). The Theory of Norms and Exploitations (TNE) proposed by Hanks is an adequate theoretical approach to deal with metaphorical terms in Business / Economics dictionaries. The pressure for the TNE came from two sources: (i) The need for a robust framework within which to account for the meaning and use of words and phrases; (ii) the development of corpora, evidence from which has challenged received lexicographical and grammatical accounts of how words and phrases are actually used in a language. Data from the WBE corpus, for example, not only shows that the metaphorical uses of three of the verbs ("blossom, reap, sow") are rather frequent (they amount to 94 of the 172 occurrences, 54.6 per cent of the total), but also that they will help students understand the tenets of "growth theory". In addition, a detailed analysis of, say, the concordances of the verb "reap" reveals that almost 50 per cent of the total occurrences revolve around the syntagmatic patterns "reap the benefits" or "reap the rewards" (example 5), sometimes modified syntactically, either by changing the focus (example 6), or by introducing extra words between them (example 7).

[5]: Example from the WBE Corpus: "All the participants in the multilateral trading system should reap the benefits of a more open world economy in terms of growing trade and investment flows."

[6]: From the WBE Corpus: "… but the benefits would have been reaped by future consumers with the price rises funding the quality enhancements and renewal of the infrastructure."

[7]: (WBE): "…to adopt and maintain staff appraisal policies and so reap the assumed benefits –the possible outcomes– especially those in respect of improved …"

Assuming that linguistic behaviour among users of a language is highly stereotypical, it stands to reason that a well-conceived pedagogical specialised dictionary should highlight the syntagmatic patterns surrounding the words that people experience and use. Hanks (2004) claims that each

> syntagmatic pattern is associated with a meaning potential – the potential of a word or phrase to contribute in a given context to the meaningfulness of an actual utterance. By attaching meaning potential to patterns rather than words, we can greatly reduce the entropy (uncertainty) of "meanings" associated with any given word.
> (Hanks 2004, 247).

Hence, the learning process will be enhanced because a question like what is the meaning of "reap the benefits of" is easier to answer than the question what is the meaning of "reap".

A corollary of this idea is that the language instructor should emphasise that in the vast majority of cases "one meaning of a word can be distinguished from other meanings of the same word by the local context, and that these local contexts can be stated explicitly" (Hanks 2004, 248). The language instructor should also explain that live or dynamic metaphors are a kind of exploitation of conventional metaphors. In lexicographical terms, this idea implies that live or dynamic metaphors have no place in a dictionary because they are more or less identified by importing knowledge, as happens in the pattern "reap the dividend", also based in the metaphorical scenario of "reap the benefits" and "reap the rewards" (example 8).

[8] (WBE Corpus): "… to evolve along with that economy, and that in doing so it helps us to reap the greatest possible dividend of prosperity and peace."

Thirdly, LSP dictionaries have to contribute to the development of discursive autonomy (L'Homme 2004). As a pedagogical strategy, discursive autonomy consists of students' grasping "the subject matter to the point of being able to explain it in their own words" (Temmerman 2003, 132). For this purpose, a well-conceived pedagogical LSP dictionary needs to make the semantic relationships between related terms explicit, for example, through the use of word families or thematic entries. Bogaards (2002) claims that in this type of entry, very complete descriptions can be found of the meanings and uses of the word as well as

of related words and concepts. Regarding metaphors, dictionaries have to cross-reference the different metaphorical terms to the conceptual metaphor they are based on. On practical terms, the conceptual metaphors of the different metaphorical terms will have to be included in the dictionary (for example, the growth metaphor), explained in the corresponding entry (i.e., in "growth") and the different metaphorical terms used to conceptualise this metaphor have to be cross-referenced to it, thus forming a kind of word family.

Dobrovol'skij (2000) has shown that thematic groups are very instructive for learners. With respect to idioms, for example, he has emphasised that the necessary prerequisites for a successful implementation of this approach (i.e., classifying linguistic metaphors according to their conceptual ones) "are, first, measuring the degree of analysability (or, in other terms, decomposability) of the idioms in question, and, second, categorizing their classification according to motivational types" (Dobrovol'skij 2000, 369).

In my view, the above proposals will help learners in three ways. First, they may highlight the metaphorical nature of some terms, particularly in the discourse of Business / Economics where metaphorical terms occur regularly. Secondly, they may contribute to vocabulary development, and "vocabulary development is as important a function of the learner's dictionary as meaning retrieval" (Meer 1999, 196). Thirdly, learners may be nudged into accepting that dictionaries offer much more than individual isolated meanings.

From a practical standpoint, production and reception processes may be enhanced if the three proposals are taken into consideration. Regarding reception, the problem of locating the "right" entry is important. Scholfield (1999) claims that dictionary use involves five main steps: Identifying a vocabulary problem; deciding to use a dictionary to solve the problem; finding the right entry; locating the right specific entry or part of an entry; exploiting the information obtained. These five steps are typically intricate, open to enquiry. With regard to reception, empirical research has investigated what Laufer (1997) identified as the problem of deceptively transparent lexical items. It consists in reading a lexical item without realising that it is unknown. As a result the reader unconsciously associates it with a known item, thus distorting his or her interpretation of a text. Scholfield (1999) claims that this problem typically occurs with words with deceptive morphological structure (for example outline and out of line), with phrasal idioms (for example, when the reader literally decodes expressions and ignores idiomatic meaning), with false friends, polysemous words (for example "abstract" only understood as "not

concrete") and with near homonyms (for example, economical and economic).

With regard to production, Rundell (1999) claims that there are two important issues which impinge on any form of dictionary use and which can make it a difficult enterprise: 1. The problem of locating the "right" entry is mostly associated to the "kid-rule strategy" (Miller and Gildea 1987). 2. The dictionary is a cultural object which tends to perpetuate certain misconceptions about the nature of language and the process of translation. The notion that a given word has a number of senses is simply a useful working convention without any objective truth-value. Cruse (1986, 53) has shown that word meaning is a far more elusive phenomenon and that, given the effects of contextual modulation, a lexical unit may justifiably be said to have a different meaning dependent on where the item occurs. In other words, what Cruse is indicating is that learners will have more opportunities of elucidating the right sense of a particular metaphorical term if the dictionary entry gives the meaning in its context, something which will be favoured by taking into consideration the three lexicographic scopes already commented upon.

6. Conclusions

The modern theory of lexicographic function claims that

> all theoretical and practical lexicographic work should be based on the dictionary functions which represent the assistance provided by a dictionary – by means of its lexicographic data – to a specific type of user in solving the specific type of problems related to a specific type of user situation.
> (Tarp 2005, 8).

Taking the important role metaphor plays in Economics / Business discourse into account, it seems adequate to investigate how current Business / Economics dictionaries treat metaphorical terms. The analysis of the presence of some "farming verbs", which are metaphorically used in the context of "growth theory", in the WBE corpus, and in six Business / Economics dictionaries indicates that dictionary entries should adopt different practices to cope with the tenets of the functional theory already explained.

Hence, this work has proposed three principles / practices: To present both the literal and metaphorical sense of a term; to pay much attention to syntagmatic patterns, and to use meaning devices which will make the semantic relationships of the metaphorical terms explicit, based on the

same conceptual metaphor. In my view this will help LSP learners and instructors because it will highlight the metaphorical nature of some terms, will contribute to vocabulary development, and will nudge learners into accepting that dictionaries offer much more than individual isolated meanings. In short, the principles and practices proposed may help LSP practitioners to concentrate on the extra-lexicographic user situation in which metaphorical terms pop up regularly.

Notes

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CHAPTER TWO

ANALYSIS OF CONSTITUTIVE METAPHOR IN ELECTRONICS AND TELECOMMUNICATIONS

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1. Introduction

This qualitative study is based on cognitive theory and the theory of metaphor (Lakoff and Johnson 1980, 1999; Lakoff 1987). The theory of metaphor explains the understanding of new areas or domains of experience through other more accessible domains, whilst cognitive theory—which studies mental operations and structures that are involved in language, meaning and reason—contributes to a theory of semantics which develops from basic level concepts, image schemas and the operations used to manipulate them. It is assumed that this approach provides a satisfactory explanation for the realms of reality used to conceptualise the area of science and technology.

Several authors highlight the importance of metaphor as a constituent part of scientific discourse (Nalimov 1981; Plung 1992; Collins and Gentner 1995; Duque García 2000). According to the analogy hypothesis proposed by Collins and Gentner (1995, 247), "a major way in which people reason about unfamiliar domains is through analogical mappings"; metaphor and analogy can create mental models which can be used to further predict and newly infer. Boyd (1993), accepting Black´s interaction theory (1962, 1993), establishes a link between metaphor and theory change, and determines the distinction between the two main functions of metaphor in science, i.e., exegetical and constitutive. Ungerer and Schmid (1996, 149) point out the importance of the exegetical function of

metaphor in this field, and claim that "there is also some evidence that conceptual metaphors may have a constitutive function in more theoretical scientific approaches." In relation to the role that constitutive metaphor plays in science and technology, Johnson-Sheehan (1997, 179) explains that "once a metaphor changes scientists´ perspective concerning a particular phenomenon, it can then be used as an invention tool through which scientists re-conceptualise natural phenomenon in new ways." Knudsen (2003) develops the thesis about the dual function of metaphors in scientific texts and distinguishes pure science, where metaphors serve the purpose of constructing new hypothesis—i.e., theory building—, from popular science, where metaphors would primarily have an explanatory function.

Today, the cognitive theory of metaphor has been applied to the study of theory building in different scientific fields (e.g., in medicine, Salager-Meyer 1990; in economics, White 1996; in physics, Cuadrado and Berge 2005). As White points out (1996), there is ample evidence which demonstrates that behind polysemy—metaphor and metonymy—we can find specific metaphorical mappings which characterise engineering and other scientific discourses. Thus, for example, in structural engineering, "when categories like fracture, fatigue, stress, bleeding and pathology are used, the mapping <structures are humans> is applied" (Durán, Aguado and Roldán 2005, 9). However, there are no specific studies in languages for specific purposes (LSP) related to the use of metaphor in the field of electronics and telecommunications.

The results of this analysis are discussed to shed light on the hypothesis of the metaphor-based conceptualization of science and technology. The final purpose is to establish the role of metaphor in constructing new meaning within electronics and telecommunications by determining the metaphorical mapping underlying this language.

2. Some basic notions

According to Lakoff and Johnson (1999), the three major findings of cognitive science are: (1) The mind is inherently embodied (Experiential Hypothesis); (2) thought is mostly unconscious, and (3) abstract concepts are largely metaphorical. We believe these findings can be applied to scientific and technical language, and assume that scientific and technical concepts are largely metaphorical.

(1) The Experiential Hypothesis (Johnson 1987) is essential to understand the theory of metaphor. The hypothesis assumes that meaning is grounded in and through our bodies, and much of our conceptual system

is either universal or widespread across languages and cultures. It maintains that central aspects of language arise from sensory, motor and other neural systems (Lakoff and Johnson 1999). In this respect, Johnson (1987) adds that

> our reality is shaped by the patterns of our body movement, the contours of our spatial and temporal orientation, and the forms of our interaction with objects. It is never merely a matter of abstract conceptualizations and propositional judgements. [...] human bodily movement, manipulation of objects, and perceptual interactions involve recurring patterns without which our experience would be chaotic and incomprehensible.
> (Johnson 1987, xix).

According to this theory, most abstract concepts are originated in pre-conceptual physical experiences. This approach, based on the analysis of the inferential models structured around the human body, assumes that pre-conceptual experiences are an important source of metaphors. Johnson calls them "embodied schema" o "image schema" (1987, cap. 2), following Kant´s concept of "schemata". According to Lakoff (1987, 267) the main pre-conceptual schemas are path, container, link, force, and balance. In turn, orientation schemas are front-back, up-down, part-whole, and centre-periphery schemas. It has been demonstrated that the grounding of metaphors are basic experiences, basic level categories and image schemas (Ungerer and Schmid 1996). In telecommunications, examples of metaphors based on pre-conceptual schemas are "high" and "low" applied to frequencies (originated in the up and down schema) whilst examples of metaphors based on basic physical experiences are conceptions like "light is a pulse" and "light is absorbed".

(2) The second postulate in cognitive linguistics—i.e., that cognitive unconscious theory is based on the assumption that much of our thought operates beneath the level of cognitive awareness—implies that reason is not completely conscious. Cognitive science vindicates that metaphor and metonymy play an important and decisive role in the human capability of inferring and reasoning, and maintains that "there is a growing body of evidence that metaphor is a pervasive, irreductible, imaginative structure of human understanding that influences the nature of meaning and constrains our rational inference" (Johnson 1987, xii).

As Lakoff and Johnson state (1999), reason has been taken as the defining characteristic of human beings which includes our capacity for logical inference and our ability to solve problems, among other skills. This theory involves a radical change in our classical understanding as it assumes that the ability arises from the nature of our brains, bodies and

body experience. The same neural and cognitive mechanisms that allow us to perceive and to move around also create our modes of reason. To understand reason we must understand our visual system, our motor system and the general mechanisms of neural bindings. Other assumptions of cognitive science are that (a) reason is not purely literal, but largely metaphorical and imaginative, and (b) reason is not dispassionate, but emotionally engaged. The implications of these assumptions in the study of science and technology are many, and will be analysed below.

(3) Abstract concepts are largely metaphorical, given the third main claim in cognitive linguistics, i.e., the cognitive theory of metaphor. Cognitive linguistics considers that metaphor and metonymy are two basic mechanisms for understanding and categorising the world. This approach distinguishes three main types of metaphors: Conceptual metaphors, metaphorical expressions, and image metaphors. Conceptual metaphors operate in our thought and can be defined as "a cross-domain mapping in the conceptual system" (Lakoff 1993, 203). According to this author (Lakoff 1987), there are two types of mappings: Ontological, which link sub-structures between the source and target domains, and epistemic mappings, which represent knowledge mapped from the source domain to the target domain. A metaphorical expression operates in our language and is a particular word or phrase which can express a conceptual metaphor. Finally, image metaphors map only one image onto another. The image is usually visualised; an example of an image metaphor in telecommunications is the plasma concept.

3. Methodology and text material

The metaphors reported in this study derive from our analysis of metaphorical terms in science and technology. Examples have been selected in order to illustrate different types of metaphors that confirm the use of cognitive theory in this field.

The approach adopted is text-based. Different technical dictionaries have also been read and interpreted in order to select all the terms in which metaphor is involved. To identify the cases of technical metaphors, i.e. subject-specific language which may not be classified as metaphors by experts in the field, a thorough reading has been carried out. Then, all those entries involving a mapping of any sort are considered in the broadest sense as metaphors and, therefore, analysed and interpreted. First, the word is defined in general English and then, within the field of telecommunications, thus establishing the conceptual mappings found. Finally, examples are provided, and all the terms selected constitute

technical or sub-technical vocabulary, i.e. they appear systematically in this specialised language, while metaphor is involved in the process of their formation.

The text material selected from specialised dictionaries provides the grounds on which to explore the conceptual mappings which give support to the language of telecommunications (see also bibliography for full references):

- TID: *The telecommunications illustrated dictionary* (Petersen 2002), which includes thousands of definitions covering the areas from telegraph and radio technologies to modern wire lines, optical technologies, etc.
- PDT: *The Penguin dictionary of telecommunications* (Graham 1983), containing over 1,500 terms related to telephony, radio, data transmission and television systems, as well as analogue and digital systems and narrow / broad communications.
- PDE: *The Penguin dictionary of electronics* (Young 1988), which provides full coverage to solid state devices and circuits, semiconductors and semiconductor technology, including associated fields such as physics and computer technology.

Then, we have also used *The Oxford English dictionary* (1989) (OED), which has provided additional examples and definitions.

The dictionary selection criterion adopted by this work has been recommended by experts in telecommunications and electronics from the Polytechnic University of Madrid. For the analysis of the texts, the cognitive metaphors or deep level cognitive mappings appear in capital letters, while the metaphorical expressions are in inverted commas, according to conventional notations in cognitive linguistics. The results of the analysis show the mappings that link different mental spaces, shedding light on the fundamental structure of our conceptual system.

4. Analysis

The following metaphors have been selected from the texts identified above. One example of conceptual metaphor is derived from basic level experiences (the land communication metaphor), and others are taken from pre-conceptual physical experiences (“absorb, feed”) and from pre-conceptual schemas (“high” and “low”, referred to frequencies—up and down schema—). In addition, different cases of image metaphors originating in the fields of medicine and biology are described below (“virus, cell, plasma, mouse, bug”).

4.1 Conceptual metaphor: <<THE LAND COMMUNICATIONS METAPHOR>>

This structural metaphor supports the conceptualization of Telecommunication Systems. Telecommunications, according to PDE (*The dictionary of electronics*, by Young 1988, 566), refers to "the study and practice of the transfer of information by any electromagnetic means, such as wire or radio waves", while a telecommunication system, according to the same source, means "the complete assembly of apparatus and circuits required to effect a desired transfer of information." In the main conceptual metaphor being analysed, the human world of land and sea transport of goods is mapped into the domain of electricity and telecommunications, thus creating an imaginary network which exists only in our mind. According to this metaphor, data, cells, radio waves, packets, etc, are vehicles in a road, while the wires and bands in a circuit are roads, paths and routes.

Most of these metaphorical terms can be classified into three semantic groups: Physical structures (channel, bridge, etc), events (traffic), and agents (conductors). In the ontological mapping described below, the following correspondence (Table 2-1) can be found (definitions taken from dictionaries):

(SOURCE DOMAIN)_____ (TARGET DOMAIN) **HUMAN COMMUNICATIONS TELECOMMUNICATION** **(transport of goods)_____ (transfer of information)**	
Circuit	The course traversed by an electric current between the two poles of a battery; the path of a voltaic current
Channel	Path along which signals can be transmitted.
Bridge	A device used to handle communications between separate local area network.
Route	Path taken by data or other transmission.
Gate	A junction that selectively controls whether current gets through, when it gets through and how much of it gets through.
Gateway	A junction that selectively controls whether current gets through, when it gets through and how much of it gets through.
Port	Data input/output point.
Path	Route, track.

Traffic	Communications signals, data, cells or packets which comprise the information and signalling.
Collision	Phenomenon that occurs when many devices try to send signals at the same time.
Conductor	A device or arrangement for conducting electricity; that part of a cable, etc., by which the electricity is conducted
Carrier	A wave of constant amplitude, frequency, and phase, which can be modulated by changing one of these characteristics.

Table 2-1: Semantic grouping correspondence

These terms and the transfer from one domain to another are given as:

A. Mapping << WIRES AND BANDS ARE STRUCTURES>>:

"Circuit". The term "circuit" originated in a pre-conceptual schema in two dimensions, i.e., the circle. According to OED (*The Oxford English dictionary*), it comes from the Latin words "circum" (meaning "square") and "īre" ("to go"). It was first recorded in 1382, when it was described as "the line, real or imaginary, described in going round any area; [...]." This term constitutes an example of a pre-conceptual image schema used for the spatial conceptualization of scientific and technical categories. It was first adopted in the field of electronics in 1746 with the meaning "the course traversed by an electric current between the two poles of a battery; the path of a voltaic current."

In the following paragraph, "circuit" designates an imaginary line traversed in a transmission, while "traffic" refers to communications signals, data or packets which carry information (taken from TID– *telecommunications illustrated dictionary*-). Example:

> In both circuit switching and packet switching network systems, there are times when the initial attempt to trace and complete a transaction between a sender and a destination is unsuccessful. This situation can be due to high traffic. [...] the transmission can not go through until an end-to-end connection is set up, dedicating an established path to the call [...].
> (Petersen 2002, 36).

"Channel". According to OED, the word "channel" originated in the Latin word "canal-em". It dates from 1300 and meant "the hollow bed of running water." Through a process of extension of meaning, in 1537 it acquired a new sense that introduced it into the technical world: "That through which information, news, trade or the like passes." Other technical

uses are defined as: 1. In the language of electronics, it means in its broadest sense "a path along which signals can be transmitted. [...] In a more specific sense it can also designate 3. A portion of the spectrum assigned for the use of a specific carrier" (TID). Thus, this word endows the technical concept a corporeal attribution lacking in electronics. Example: "[…] the user access channel across which the data travel." (Petersen 2002, 171)

"Bridge". A bridge is defined in general English as "a structure forming or carrying a road over a river, a ravine, etc., or affording passage between two points at a height above the ground" (OED). The word dates from the year 1000. In telecommunications, in its broadest sense, a bridge is a link that provides a connection across a physical or conceptual gap. [...]. In networks, it gives name to "a device commonly used to handle communications between separate local area networks" (TID). In circuits, it refers to "an assembly of at least four circuit elements, such as resistors, capacitators, etc. together with a current source and a null point detecting device." Example: "Each of the circuit elements is arranged in one arm of the bridge" (Young 1988, 44).

"Route". The word dates from 1225, and means "a way, road, or course; a certain direction taken in travelling form one place to another; a regular line of travel or passage" (OED). According to the same source, in telecommunications, it was first recorded in 1948 as a verb meaning "to direct (an electrical signal or transmission of any kind, such as a phone call) over a particular circuit or path, or to a particular location. In TID, the noun "route" is defined as "a path taken by data or other transmission", while the verb "to route" means "to delineate a communications path." A router is derived from this word, meaning a device or mechanism for selecting a path and routing, which consists of "selecting or establishing a path." (TID). Example:

> The reference channel plug- in[…] accepts a reference signal derived from a chopper, which enables the plug-in to control and route the signal pulses to two counting channels.
> (OED).

"Gate". The word dates from 778, meaning "an opening in a wall, made for the purpose of entrance and exit, and capable of being closed by a movable barrier, the existence of which it is usually implied." In electronics its early use was recorded in 1946, meaning "an electrical signal that is used to trigger or control the passage of other signals in a circuit." According to TID, in an electrical circuit, a gate is "a junction that selectively controls whether current gets through, when it gets through and

how much of it gets through." Example: "Analog gates are widely used in radar and electronic control systems" (PDE).

"Gateway" means "a passage that is or may be closed by a gate; an opening through a fence or wall" (OED). In its broadest sense, in telecommunications, a gateway is "a transmission connection" (TID). Example: "When local nets are connected with external nets, the gateway may also perform security functions" (Petersen 2002, 395).

"Port" dates from as early as 893, and originally means "a place by the shore where ships may run in for shelter from storms, or to load and unload; a harbour, a haven" (OED). In telecommunications it refers to a "point of ingress or egress, or both. Data input/output point. 2. Entrance or exit to a network, firewall, or gateway" (TID). Example: "Port management, security, protocol conversion, and traffic management are essential aspects of networks, especially mixed networks and those with shared resources" (Petersen 2002, 440).

"Path". This term dates from 700, meaning "a way beaten or trodden by the feet of men or beasts; a track formed incidentally by passage between places, rather than expressly planned and constructed to accommodate traffic" (OED). In telecommunications, it designates "a route, track, directional identifier, runaway, conduit, or end to end, hop to hop, or as you go means of delineating the track followed by a person, process, transmission, or data unit while travelling from one point to another" (TID). Example: [...] the transmission can not go through until an end-to-end connection is set up, dedicating an established path to the call [...] (Petersen 2002, 36).

B. Events: <<SIGNALS, DATA, CELLS OR PACKETS ARE VEHICLES>>

"Traffic". According to OED, this word was first recorded in 1506, meaning "the transportation of merchandise for the purpose of trade." Traffic is "often used on large communications systems to describe communications signals, data, cells or packets which comprise the information and signalling associated with the transmission" (TID). Other word groups and expressions related to traffic are: Traffic capacity, traffic concentration, traffic paths (meaning the physical or virtual pathway taken from the sender to the receiver—TID—), traffic flow or even traffic policing, which consists of a mechanism that detects and controls cell traffic according to specific parameters (TID). Example:

> In both circuit switching and packet switching network systems, there are times when the initial attempt to trace and complete a transaction between a sender and a destination is unsuccessful. This situation can be due to high traffic.
> (Petersen 2002, 36).

"Collision" dates from 1432-50 and refers to "the action of colliding or forcibly striking or dashing together; violent encounter of a moving body with another" (OED). "In data networks, there are commonly many devices trying to send signals at the same time. If this happens at exactly the same time, collisions may occur. To manage the collision detection and traffic flow, there are a number of mechanisms, including jam signals, to cause the devices to stop sending at the same time" (TID). Metaphors related to collision are "jam" and "traffic flow". Example:

> To manage the collision detection and traffic flow, there are a number of mechanisms, including jam signals, to cause the devices to stop sending at the same time
> (Petersen 2002, 186).

C. Agents: <<CABLES AND MATERIALS ARE CONDUCTORS >>

"Conductor". To conduct implies to carry or transport from one place to another and involves active action on the part of an agent. A process of extension of meaning gives rise to a metaphor that is applied to materials. According to the OED, "conduct" originally dates from 1485 and means "to lead or guide." In physics, it dates from 1740. "Of a body: to convey through its particles some form of energy, as heat or electricity; to transmit, act as a conductor of, to serve as a channel or vehicle for." From this sense derives "conductor" (1481), which means "one who leads, guides or escorts; a leader, guide." In 1796 this noun is recorded as a word applied to objects: "anything that conducts, leads or guides; [...]." In physics is refers to both "a device or an arrangement for conducting electricity; that part of a cable, etc., by which the electricity is conducted" (first recorded in 1737), and to "a substance having the property of conducting or permitting the passage of heat, electricity, or other form of energy" (first recorded in 1745). Terms related to conduct are: Superconductivity, Superconducting (referred to cables), Semiconductor (applied to material) [Insulator and conductor], and so on. Example: "The transmission of electric energy through a substance that does not itself move. In electrical conductors, such as metals, it entails the migration of electrons" (Young 1988, 92).

"Carrier". It dates from 1398, having the meaning of "one who or that

which carries, in the various senses of the verb; a bearer" (OED). In telecommunications, it designates "a wave of constant amplitude, frequency, and phase, which can be modulated by changing one of these characteristics" (TID). This dictionary defines a carrier band as "a range of adjacent frequencies that can be modulated to carry information." Example: "The multi-channel carrier system in telephony allows many simultaneous independent signals to be transmitted on the same circuit" (Young 1988, 54).

4.2 Metaphor based on basic physical experience

The next two examples illustrate the case of basic physical experiences, also notably primed for use in telecommunications language, and constituting a source of conceptual metaphors in science and technology:

"Absorption". A physical process meaning "to swallow up". In telecommunications, it refers to "1. The process by which particles penetrate and are subsumed by matter. 2. Penetration of a substance or wave into another substance" (TID). Example: "Absorption can also occur due to photon-induced electron transmission between different energy bands in a semi-conductor and can be used to determine the energy gap" (Young 1988, 2).

"To Feed". To feed refers to a basic level experience meaning "to supply with food." It establishes a conceptual metaphor in which electrical signals are food and the network or system is a living being. In electronics it is defined as: "to relay or supply electrical signals or power to, esp. as part of a larger network or system" (OED). This verb was recorded for the first time in 1894. Example: "They feed the distributing network with current at a pressure of about 100 volts." (quoted in OED).

From this word derives "feedback" This term appears around the early 1920s, and is used in electricity and cybernetics, meaning "to return (a fraction of an input signal) to an input of the same or preceding stage of the circuit, device, process, etc. that produced it" (OED). Example: "The magnified oscillations are fed back again into the grid circuit" (OED).

4.3 Metaphor based on pre-conceptual schemas

As the third major group referred above, the following compound terms provide an example of metaphors that were originated in the up and down schema: High and low frequency.

"Frequency" is defined as "the fact of occurring often or being

repeated at short intervals. In telecommunications, it means the number of cycles per second of the carrier wave of a transmission; hence, loosely, a frequency band, a channel" (OED). Example: "Enough radio frequencies could be made available on the medium way to satisfy commercial radio and the existing BBC stations" (OED).

"High frequency" is "a signal frequency defined as the range from 3 and 30 MHz" (TID). The up and down schema is usually adopted to express "more is high" and "less is low" equivalents.

4.4 Image metaphor

As aforementioned, lexicalised image metaphors originating in medicine and biology are "virus", "cell", "plasma", "bug" and "mouse":

"Virus" appeared in the late 1500s, meaning "venom, such as is emitted by a poisonous animal" (OED). According to the same source, in 1880, this concept is defined as "an infectious organism that is usually sub-microscopic, can multiply only inside certain living host cells [...]." In the technical scope it receives the meaning of "a computer code that is designed to be functionally similar to a biological virus in the sense that it uses its host to spread itself through a system." (TID). This computer sense is not recorded in OED. The image metaphor takes place not for its physical resemblance, but for the effect that a virus can cause in the human organism.

"Cell". According to OED, this word originated in 1225 meaning "a small apartment, room or dwelling." For the year 1577 a new meaning is recorded: "One of the compartments into which anything is divided." In telecommunications, it dates from 1828 and is defined as "[…] a simple voltaic apparatus, containing only one pair of metallic elements; when several cells are united they constitute a battery."

"Plasma". Even though this word does not come from medicine or biology, it acquires its salient meaning (cf. Giora, 1999) in this area. According to OED, the word appeared in 1712 with the meaning "form, mould, shape." In biology the term is defined as "the living matter of a cell [...]" (as early as 1860). Finally, in the electricity field, it is used in 1928, and it means "a gas in which there are positive ions and free negative electrons, usually in approximately equal numbers throughout and therefore electrically neutral [...] Also, any analogous collection of charged particles in which one or both kinds are mobile, as the conduction electrons in a metal or the ions in a salt solution" (OED).

"Bug". According to OED, it is "a name given vaguely to various insects, esp. of the beetle kind", and dates from 1642. It has various slang

uses. In the *Dictionary of electronics*, a bug is defined as "an error or fault in a computer program or in computer equipment. To debug the program or system is to find and correct any errors." In TID, it is considered as "a small concealed listening device."

"Mouse" dates to 888 with the common meaning of an animal of any of the smaller species of the genus Mus of rodents. It was not recorded for the first time in computing and information technology until 1965, meaning "a small hand-held device which is moved over a flat surface to produce a corresponding movement of a cursor or arrow on a VDU, and which usually has fingertip controls for selecting a function or entering a command" (OED). It acquires this name due to its physical resemblance to the animal, although as mentioned above, image metaphors are not always based on visual images, but on any type of physical senses.

5. Conclusion

This study tends to confirm the theory that the grounding of metaphors in science and technology forms as human basic experiencing, basic level categorising, and image visualising. In the type of technical discourse approached, the general classes of objects, organisms and persons are used as source models. All these metaphors seem to endow the technical concepts listed with corporeal attributions which they lack in the area itself of electronics and telecommunications. This scope, perceived less frequently in scientific language, facilitates the cognitive management of scientific / technical concepts.

Secondly, and by relying on the so-called experientialist theory, we have examined that basic image schemas are used for the spatial conceptualization of abstract scientific and technical categories. An example has been the case of "high and low" categorisation, in which the up and down schema is used by referring to frequencies.

Thirdly, it seems that conceptual metaphors provide mental models which generate new metaphors for scientific discourse. Among these models, those originating in the basic experience of land transportation (e.g., "circuits", "tracks" or "conductivity") are particularly relevant. As has been seen, most terms are not independent, but constitute connected semantic networks.

Finally, some examples of image metaphors originating in medicine and biology ("cells", "virus", "plasma") also occur relevantly. They seem to contribute to underlining the thesis that human reason is not purely literal, but largely metaphorically visual and imaginative. Our semantic analysis thus vindicates the importance of metaphor not only as an

essential source of scientific and technical terms, but also as a mental mechanism to conceptualise new scientific knowledge and theories. As Kittay (1991) maintains,

> when science is seen as human activity rather than as the repository of ultimate truths, and cognition generally is seen as the creative shaping of our conceptions of the world, the creative imaginative play of metaphor is seen as characteristic not only of poetry, but also of science.
> (Kittay 1991, 9).

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Part II

Tourism and Specialised Communication

CHAPTER THREE

POLITENESS IN SERVICE ENCOUNTERS: TEACHING SUGGESTIONS FROM A COMMUNICATIVE PERSPECTIVE[1]

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1. Introduction

Nowadays we are witnessing the process by which higher education institutions in Spain, as a result of the new law (LOU) implementation, are coming to terms with the European Area of Higher Education (EAHE), which has been regarded as a key way to facilitate citizens' mobility across Europe. This integration promotes a further intensification of language learning and teaching in member countries to reach more effective internal communication. Within this context, learning the English language has become essential given its widespread use throughout the world (House and Kasper 2000). In fact, since the beginning of the new millennium, English has grown in international importance achieving a status of "great national language" (House 2002a; 2002b) and, consequently, has been recognised as the world language for information exchange and communication (Cenoz and Jessner 2000; Wood 2001). Teaching learners how to use this language as a means of international communication is considered a necessity in our society.

However, in order to achieve this aim and make learners become communicatively competent in English, it has often been claimed that having an accurate knowledge of it in terms of grammar, syntax and semantic forms may not be enough to develop learners' full communicative competence (Kasper and Schmidt 1996; Kasper and Roever 2005). For this reason, different models have been proposed

(Bachman 1990; Celce-Murcia, Dörnyei and Thurrell 1995; Usó-Juan and Martínez-Flor 2006) in order to describe those essential components that make learners become not only grammatically proficient in English, but also pragmatically efficient when using the language. To this respect, focusing on the development of learners' pragmatic competence seems to be crucial, and particularly in foreign language settings where learners have no chances to be in contact with the English language outside the classroom context (Bardovi-Harlig 2001; Kasper 2001). Given this fact, research on the effects of instruction in the field of inter-language pragmatics (ILP) has demonstrated the benefits of engaging learners in a pragmatic training period (Rose and Kasper 2001; Martínez-Flor, Usó-Juan and Fernández-Guerra 2003; Alcón and Martínez-Flor 2005; Tatsuki 2005). However, as Kasper and Rose (2002) claim, it is still necessary to conduct more research on the development of new teaching methods and widen the contexts where intervention may be facilitative.

Bearing this assumption in mind, the aim of this study is to present an instructional framework devoted to teaching learners' appropriate and polite behaviour in Tourism service encounters. Specifically, it has been elaborated to raise students' awareness of pragmatically appropriate suggestions in English as well as to produce this speech act depending on different socio-pragmatic factors and contextual variables. Thus, in order to provide a detailed theoretical background which serves as the basis for our suggested instructional framework, we will first review politeness theory and describe the particular speech act examined within such a framework, namely that of suggestions. Then, we will present our teaching approach with a focus on both awareness-raising and production activities. Finally, some concluding remarks regarding the integration of pragmatics in the language syllabi will be included.

2. Theoretical background

2.1 Politeness theory

In light of the importance of developing learners' communicative competence for fluency in oral discourse, paying attention to politeness is essential. Politeness affects learners' choice of specific strategies when performing particular speech acts. In fact, as claimed by LoCastro (2003, 274), politeness "has to do with the addressee's expectations that the speaker will engage in situationally appropriate behaviour". Knowing how to behave in a polite and appropriate way is key for a successful communicative interchange.

One of the most influential politeness theories in the field of ILP is that of the face-saving view developed by Brown and Levinson (1987), since it consists of a comprehensive construct that deals with the analysis of speech act realisation and the various factors that can affect it. As its name indicates, this particular view of politeness is based on the notion of "face", which involves a person's feeling of self-worth or self-image, and is closely linked to directive speech acts, given the fact that this particular group of speech acts intrinsically threaten face and, thus, are called "face-threatening acts" (FTAs). In an interaction participants must engage in some form of face-work, in relation to which they may behave in two ways: either they seek to avoid the FTA or they decide to do the FTA. These two decisions and the different options that can be adopted to reduce any possible offence to the participants involved in the interaction are illustrated in Figure 3-1:

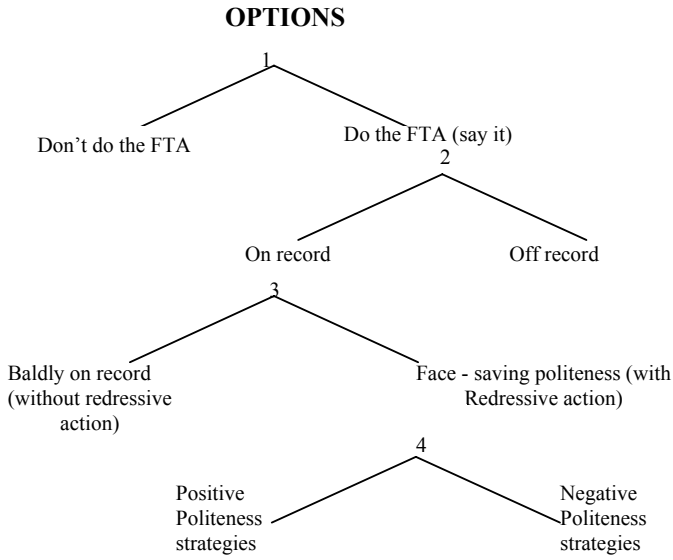

Fig. 3-1: Possible options for doing FTAs (Source: Olshtain and Blum-Kulka 1985, 307; Brown and Levinson 1987, 69).

According to Olshtain and Blum-Kulka (1985), on the basis of Brown and Levinson's (1987) model of politeness, when participants are faced with the performance of a speech act that may threaten the interlocutor's face, they have a series of options to go through, and at each juncture (exemplified from 1 to 4 in Figure 3-1 above), the participants make a decision. If the participants decide to do the FTA, they have to make another decision, as they can either "go off record", in which case the participants' communicative intent may imply more than one intention through hints or indirect suggestions, or they can "go on record" expressing their intentions clearly and unambiguously. At this stage, if participants decide to choose the last option, they have two more choices when performing their FTA on record, which depend on the use or non-use of redressive action. Redressive action refers to the effort made by the participants to soften the force of the speech act. Thus, they either make the FTA baldly, that is, without any redressive action (use of direct strategies) or they can decide to make use of face-saving politeness that includes redressive action strategies. Finally, participants can choose whether to employ positive or negative politeness strategies. In using positive politeness strategies, participants appeal to the positive face of their interlocutors by desiring that the others approve of them. These strategies would include the use of in-group identity markers or markers of affection. In contrast to this type of strategies, if participants employ a speech act that poses a threat to their interlocutors' face such as directives, they may employ negative politeness strategies that serve to minimise the imposition of the FTA. Examples of this type of negative politeness strategies include the use of conventionally indirect formulae or different means of hedging or mitigation.

Given the fact that the participants must adopt certain strategies in order to preserve hearers' face, Brown and Levinson (1987) also propose that the choice of which strategy to use will depend on the speakers' assessment of the size of the FTA, which is constrained by contextual factors. This assessment is based on three variables, or socio-pragmatic factors, which determine the seriousness of the FTA. The first variable refers to the "social distance" between the speaker and hearer, that is, the degree of familiarity that exists between the interactants. In this sense, as social distance increases, politeness also increases. Regarding the second parameter, that of the relative power of the speaker with respect to the hearer, it is assumed that the more powerful the hearer, the more polite the speaker will have to be. Finally, the "ranking of imposition", which addresses the third contextual factor, implies that the greater the imposition on the hearer, the more polite the speaker is required to be.

This politeness principle developed by Brown and Levinson (1987), which distinguishes between on record and off record strategies when performing an FTA, is claimed to be universal. These strategies are closely related to the two pragmatic ones of direct and indirect realisation strategies, which according to Kasper and Schmidt (1996), are also universally available in all speech acts. Nevertheless, as White (1993) states, when dealing with foreign language learners, which is our case, particular care has to be taken, since these learners know the rules of politeness of their own language and culture. Thus, if they attempt to transfer their native conventions to the target language, a pragmalinguistic failure may occur (Thomas 1983) and they may be misunderstood or even interpreted as being rude, arrogant, pushy or offensive. For this reason, as suggested by Thomas (1995),

> it is not the linguistic form alone which renders the speech act polite or impolite, but the linguistic form + the context of utterance + the relationship between the speaker and the hearer.
> (Thomas 1995, 157).

We have taken all these aspects into account in the design of our proposed instructional framework since we are dealing with a directive and face-threatening speech act, namely that of suggestion.

2.2 A focus on suggestion as a face-threatening speech act

Suggestions belong to the group of directive speech acts which, according to Searle (1976), refer to those attempts to make the world match the words. Put another way, directives consist of speech acts in which the speaker's purpose is to get the hearer to commit themselves to some future course of action. Therefore, it has been claimed that a directive speech act implies that the speaker's attitude and intention when performing an utterance must be taken as a reason for the hearer's action (Bach and Harnish 1979). In addition to this characteristic, another relevant feature affecting directives in opposition to other speech acts, such as representatives or commissives, refers to the necessary interaction between the speaker and hearer in order to have the speech act realised. As "only in the case of directives is the hearer's subsequent act (getting things done) part of the speaker's intention" (Trosborg 1995, 20), both speaker and hearer are to be minded when producing directive speech acts.

Apart from distinguishing this particular group of directive speech acts from the other types, it is important to mention that there are different speech acts within the group of directives. According to Schmidt and

Richards (1980), the class of directives includes speech acts such as requests, commands and suggestions, the main goal of which is to get the hearer to do something, although the force of the attempt can differ from one speech act to another. Similarly, Haverkate (1984) distinguishes between impositive and non-impositive directives. The former group includes most threatening acts, such as requesting, pleading and ordering, whereas non-impositive directives refer to suggestions and instructions. The main difference between these two groups involves the fact that the benefits obtained by carrying out an impositive speech act are exclusively for the speaker, whereas the objective of the non-impositive speech acts is to benefit the hearers. This distinction is particularly important in our work, since the speech act we have analysed, namely that of suggestions, falls into this second category of non-impositive acts and, consequently, it is characterised by having the hearer as beneficiary of the action. More specifically, "in a suggestion, the speaker asks the hearer to take some action which the speaker believes will benefit the hearer, even one that the speaker should desire" (Rintell 1979, 99).

However, although suggestions are made to the best interest of the hearer, this speech act is regarded as an FTA (Brown and Levinson 1987), where the speaker is in some way intruding into the hearer's world by performing an act that concerns what the latter should do. In this sense, suggestions are regarded as an imposition upon the hearer by affronting their negative face (Banerjee and Carrell 1988). According to these authors, if a speaker decides to make a suggestion several factors should be considered, such as the urgency of the suggestion, the degree of embarrassment in the situation, and the social distance and power between the speaker and hearer (Brown and Levinson 1987). For this reason, depending on these factors and the extent to which the situation can be more or less threatening, the speaker should try to soften or mitigate this speech act through the use of specific politeness strategies in order to minimise as far as possible the chances of the hearer being offended.

Therefore, considering the importance of paying attention to politeness in order to appropriately perform the speech act of suggesting, the following section is devoted to the elaboration of an instructional framework aimed at teaching learners' pragmatic competence in English when suggesting in Tourism service encounters. Specifically, it has been elaborated to raise learners' awareness of pragmatically appropriate suggestions as well as to produce this speech act depending on contextual variables. We have dealt with this particular speech act as the focus of instruction for two main reasons: i) It is an FTA and, therefore, demands socio-pragmatic expertise on the part of the hearer, and ii) it is a speech act

that Tourism students need in their future jobs to handle situations appropriately.

3. Teaching polite behaviour in service encounter suggestions

Our proposed instructional framework has been designed on the basis of previous research in ILP (Olshtain and Cohen 1991; Bardovi-Harlig 1996; Kasper 1997; Judd 1999; Rose 1994, 1999, 2001; Washburn 2001; Bardovi-Harlig and Mahan-Taylor 2003; Eslami-Rasekh 2005; Martínez-Flor forthcoming; Usó-Juan forthcoming). These authors have presented and developed a series of activities that aim not only to foster learners' pragmatic consciousness on various pragmatic issues, but also allow them opportunities for communicative practice. Considering these assumptions and adopting some of the techniques proposed by these ILP scholars, we have developed a particular teaching approach that consists of two main stages: i) a warming-up, and ii) a performance stage, which we describe in turn.

3.1 First stage: Warming-up

To get started, students are explicitly instructed on the distinction between pragmalinguistics and socio-pragmatics (Leech 1983), since knowledge of these two aspects is basic to making appropriate suggestions. On the one hand, pragmalinguistics refers to the grammatical side of pragmatics and addresses the resources for conveying particular communicative acts, such as strategies like directness and indirectness. The students are taught the pragmalinguistic forms employed when suggesting in English by following Martínez-Flor's (2005) proposed taxonomy (see Table 3-1), which is based on previous studies in ILP (Edmonson and House 1981; Wardhaugh 1985; Wierzbicka 1987; Banerjee and Carrell 1988; Beebe, Takahashi and Uliss-Weltz 1990; Hinkel 1994, 1997; Koike 1994, 1996; Tsui 1994; Bardovi-Harlig and Hartford 1996; Kasper and Schmidt 1996; Schmidt et al. 1996; Alcón and Safont 2001, and Koester 2002).

TYPE	STRATEGY	EXAMPLE
Direct	Performatives	I suggest that you …
		I recommend you …
	Noun of suggestion	My suggestion would be …
	Imperative	Try using …
	Negative imperative	Don't try to …
Conventionalised forms	Specific formulae (interrogative forms)	Why don't you …?
		What about …?
		Have you thought about …?
	Possibility/probability	You can/could …
		You may/might …
	Should/ought to	You should …
	Conditional	If I were you, I would …
	Need	You need …
Indirect	Impersonal	It would be a good idea to …
		It would be helpful if you …
		It might be better to …
	Hints	I've heard that …

Table 3-1: Pragmalinguistic forms for suggestions

On the other hand, the teaching of communicative strategies includes a second type of knowledge, that of socio-pragmatics. This knowledge deals with the relationship between linguistic action and social structure, as it refers to those social factors that qualify a linguistic act as appropriate. In such cases it is of paramount importance to discuss with learners the power-distance-imposition parameters of Brown and Levinson's (1987) politeness theory described in the previous section and summarised in Table 3-2 as a user-friendly worksheet which students receive.

SOCIO-PRAGMATIC FACTORS	EXPLANATION
Power	It refers to the relative power of the speaker with reference to the hearer. If interlocutors have different status positions within the institution, politeness is likely to increase on the part of the one who occupies a lower status position.
Distance	It refers to the degree of familiarity between the interlocutors. If social distance between interlocutors increases, politeness is likely to increase.
Imposition	It refers to the type of imposition the speaker is forcing upon someone. The higher the imposition, the more polite discourse is likely to be.

Table 3-2: Socio-pragmatic factors

This warming-up stage provides learners with useful information to be put into practice in the performance stage, which is the focus of the next section.

3.2 Second stage: Performance

For this phase, the students are provided with opportunities to practice the information presented in the first stage. Thus, following Kasper's (1997) recommendations, we have incorporated tailor-made awareness-raising and production activities for helping Tourism learners with appropriate suggestions in service encounters (see Table 3-3).

SUGGESTED ACTIVITIES
• Awareness-raising activities: - Ranking - Deciding
• Production activities: Written: - Controlled: Producing - Semi-controlled: Sending emails Oral: - Controlled*:* Performing - Semi-controlled: Making phone calls

Table 3-3: Suggested activities for the performance stage

3.2.1 Awareness-raising activities

Regarding the awareness-raising activities, we first propose a "ranking task" where the teacher provides a language situation and three suggestion forms associated with it, and learners are asked to rank-order the three suggestions from most (3) to least (1) appropriate for each specific context (see Example 1). The aim of this type of activity is to widen the scope of suggestion realisation forms, as learners are exposed to three different forms of the same speech act for the same language situation.

Example (1)

Situation. You represent the Barn House Hotel in Berlin. You are in a meeting with the conference organiser for the European Tour Operators Association explaining why the hotel meets all their requirements to be chosen as the ideal conference venue. He tells you that participants will be free in the afternoon after hard work during the conference sessions in the morning. The conference package you are discussing includes all facilities and technical assistance that may be needed for the conference sessions. However, it has also the option to include arrangements for excursions at a very low extra charge. You say:

Possible answers (ranging from indirect to direct):
a. It would be a good idea to prepare some excursions for the participants to allow them to know what the city has to offer.
[…....]
b. What about preparing some excursions in the afternoon to allow participants to enjoy the city?
[……]

c. My suggestion would be to make arrangements for excursions in the afternoon to ensure the success of your conference.
[……]

Another activity that may aid the students' development of pragmatic awareness is a "deciding task" where the teacher provides a language situation and a suggestion associated with it. Learners are first asked to decide if the suggestion form is appropriate or inappropriate for that particular context and, then, they are requested to explain why they gave that answer (see Example 2). The potential benefit of this task is that it elicits learners' meta-pragmatic discourse and, therefore, helps them to become further aware of the importance of contextual variables.

Example (2)

You are working as a travel agent in Ocean Travel Company and you are preparing an itinerary for a weekend break in London for a Spanish couple. The clients have never been in London but they have heard that the weather there is unpredictable, and they do not know what kind of clothes to wear (e.g. whether to take warm clothes despite going in May). You have been in London a few times. You say:

Suggestion: Get warm clothes, mates!
Appropriate □ Inappropriate □
Reason:……..

3.2.2 Production activities

As far as the production activities are concerned, we support Judd's (1999) claim that it is important to range those activities from more to less controlled / teacher-guided. Additionally, we believe that it is necessary to design both written and oral production exercises so that learners can master their pragmatic knowledge in both modes.

Starting with the written activities, a controlled written production activity could be one in which the teacher provides a detailed language situation and learners are asked to produce the most appropriate suggestion realization form for the given context (see Example 3).

Example (3)

You are a cabin attendant flying from Valencia to Majorca. A passenger on board the aircraft has already explained to you that he has never flown

before and is scared of flying. When the plane is about to take off you realize that he is going to lose his self-control and scream. You approach him offering help. You say:

Suggestion: ……

A less teacher-guided controlled activity could involve learners that send semi-authentic emails. Here, the teacher presents a language situation and the students are asked to write an email to the particular addressee indicated in the situation, who may be the teacher (see Example 4). After sending the emails, the instructor can use hard copies of them to provide learners with feedback on their own suggestions. The benefit of this activity is that learners' pragmatic production is elicited in a more realistic way, especially because sending emails is part of their daily-life routines (Martínez-Flor and Usó-Juan 2006)

Example (4)

A young couple is planning to visit England for two weeks this summer. Since they know your travel agency specialises in arranging package tours around England, they would like to know which cities are the nicest ones to visit. Send them an email and suggest they take a particular package tour which starts and ends in London and allows clients to see nice cities in England such as Cambridge, Oxford, Bath, Liverpool and Leeds.

To: (Teacher's email address)
Subject: (subject code) + (students' first name)

Regarding the oral production activities, a controlled oral production task could be one in which the teacher selects a scene from a particular film in which characters are interacting in a situation that elicits a suggestion (see Example 5 for a film scene that includes a suggestion). At the time of describing the suggestion, the tape is paused, and learners are required to complete a video worksheet to help them decide in their thinking progress the suggestion that is likely to take place between the interlocutors (see Table 3-4).

Example (5)

Film. *Before Sunrise* (drama / romance). Plot: A French grad student named Celine (Julie Delpy) meets an American boy named Jesse (Ethan Hawke) on the Budapest-Vienna train. They get off the train in Vienna and hang out for a while.

Film Extract[2]

[They are walking over a bridge telling each other that the situation they are living is a bit weird. Then, they say they could do something during the time they are going to spend together in Vienna …] (00:16:40)

Celine:	This is great. Let's go to some places. Look at your book.
Jesse:	Yeah … we're in Vienna, let's go to some places. Let's ask these guys.
Celine:	Okay
Jesse:	uh … excuse me? Excuse me? … uh … *Sprechen Sie English?*
Boy 1:	*Ja*. Of course.
Boy 2:	Do you speak German for a change?
Jesse:	What?
Boy 2:	No, it was a joke.
Jesse:	Uh … listen, we just got into Vienna today, and we're looking for something fun to do …
Celine:	like museums, exhibitions, things
Boy 2:	but museums are not that funny any more these days
Boy 1:	eh … they're closing right now
	[then the two boys tell them about a play they are performing]
Celine:	Great
Boy 1:	As you see, there is the address. It's in the second district. Near the Prater. You know the Prater?
Boy 2:	You know the Prater?
Celine:	oh … the big Ferris wheel? [addressing to Jesse] We should go.
Boy 2:	Yes, the wheel. Everybody knows the wheel.
Boy 1:	*Perhaps you can go to the Prater before the play*. It starts at 21.30
Jesse:	21.30?
Boy 2:	It's at 9.30
Celine:	Oh 9.30
Jesse:	Right

VIDEO WORKSHEET			
Step 1. Circle the option you think it is appropriate:			
1. Speakers' social distance:	close distant		very distant
2. Speakers' power:	S* > H**	S = H	S < H
3. Speaker's imposition:	low	mild	high
Step 2. Provide the context where the characters are interacting:			
Step 3.Provide additional aspects regarding their non-verbal behaviour (tone of voice, body language, attitudinal behaviour, facial expressions, and so on):			

Table 3-4: Video worksheet (Source: Martínez-Flor and Usó-Juan forthcoming). *S=Speaker; **H=Hearer

Having reflected on the particular situation watched in the video scene, the students are requested to act out in pairs how the conversation is likely to follow. After this, they are asked to compare their performance with the one acted out in the film and discuss the differences. The benefit of this activity is that learners are provided with opportunities for observing and analysing authentic pragmatic language use. Moreover, the benefits of using film excerpts is that it allows learners to observe aspects from the characters' non-verbal behaviour (i.e. tone of the voice, facial expression, body language, etc.), which have a key role in the successful completion of a suggestion.

A less teacher-guided controlled activity could involve learners making real phone calls. Here, the learners are provided with a situation that elicits a suggestion and are asked to make a phone call (see Example 6). This call is made to the teacher so that learners can leave the message in the teacher's office answering machine. After that, the teacher can use the transcripts from the calls to allow general class discussion. The benefit of this activity is that the students are provided with a more real-life task, since as happens with sending an email, making a phone call is part of their everyday routines.

Example (6)

You are working as a travel agent in Ocean Travel Company. A client has already booked a luxury travel vacation in Cambridge including flight tickets and hotel. This week there is a special offer in which clients can save up to 200 euros if they stay in a particular hotel, that is, the Hotel Fortness. However, when preparing all documents you realise that you didn't explain this special offer to the client. Call the client who booked the

trip to Cambridge and suggest that he change the hotel.

Telephone number: (Teacher's office phone number)

All the suggested production activities in this performance stage are only examples of more or less controlled teacher-guided practice that can be carried out with learners in instructed contexts. Although there are, of course, many other activities that can be employed to develop our learners' pragmatic competence, the ones presented in this study can help them to understand the extent to which socio-pragmatic factors affect the appropriate choice of particular pragmalinguistic forms when making suggestions. As a final remark, it must be emphasised that learners should be presented with a variety of contrasting scenarios depicting different situational variables to allow them to better understand how such contextual factors affect the choice of the pragmalinguistic form they are going to use, in this case, the particular forms of suggestion strategies.

4. Concluding remarks

There is no question that our main objective as language teachers in higher education institutions is to prepare students to become communicatively competent in a target language and culture. This means, then, that we should pay attention in our courses to the pragmatic needs our learners are going to face in their future jobs (i.e. service encounters). In fact, a lack of pragmatic knowledge on the part of our learners can lead to misunderstandings in their job exchanges as well as impolite behaviour, thus evoking awkward impressions in the eyes of the customer. Bearing this idea in mind, we have presented a instructional framework that involves a "warming-up" and a "performance" stage, and aims at raising learners' awareness of the importance of the socio-pragmatic factors when selecting particular pragmalinguistic forms to make suggestions. Furthermore, it provides learners with the three necessary conditions for the acquisition of their pragmatic ability in the target language, namely exposure to input, opportunities for practice in a written and oral mode, and provision of feedback. We believe that the activities we have presented in this study for the teaching of suggestions in instructed settings could serve as a preliminary step on the road to the effective integration of pragmatics in our English language curricula.

Notes

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[2] It needs to be mentioned that in this instructional framework we are only dealing with "non-inclusive we" suggestions (Koester 2002), since we are interested in the fact that the hearer's action will benefit him/her. Therefore, we have not highlighted the inclusive-we suggestion "we should go" that appears in line 18 of the film extract.

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CHAPTER FOUR

A CASE STUDY IN ENGLISH FOR OCCUPATIONAL PURPOSES THROUGH SIMULATED WORK SITUATIONS IN SPECIFIC SETTINGS

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1. Introduction

Over the past few decades, English for Specific Purposes (ESP) within the academic syllabus in Spanish universities has undergone numerous changes in status, recognition, intensification and limitation. Supported by the study of a sampling of public and private universities with ESP programs nationwide, McGinity, Edwards and Alejo (1993, 294-297) found that indeed the survival of this subject is a fragile case, encountering problems such as "teacher isolation and low status, understaffing, overcrowding, and mixed ability classes." In order to be able to deal with this situation, teachers tend to devote a great deal of their time to developing different techniques and methodological proposals that can be useful for their students' language needs.

This study focuses on the branch of ESP dedicated to the use of English for Occupational Purposes (EOP), the aim of which lies in teaching the learners to communicate according to their linguistic needs in future professional situations. Its main aim also lies in the justification and reinforcement regarding the important role played by the English language in the labor world.

The case study, carried out in Spanish-based multinationals whose identities cannot be disclosed due to our confidentiality agreement, may

provide guidelines to follow when identifying our students' and/or future workers' linguistic and communicative needs. It consists of empirical research on the analytical processes of what has come to be termed as the "linguistic audit", a term coined by Pilbeam (1979), the main objective of which resides in the study and identification of those strong and weak points of a company's organization in terms of the communication process carried out in a foreign language. An adequate syllabus design, as a consequence, should be oriented towards mutual goals fitting together as if they were pieces of a finely orchestrated jigsaw puzzle. Under this framework, and in order to reach the aforementioned objectives, the knowledge obtained in the classroom must prove valid when being applied outside the academic world.

2. Scientific basis

Nowadays, English is necessary to obtain a job, get promoted, and perform effectively in the world of work (Aguado de Cea 2004). This demand has generated the incursion of a new linguistic branch within the field of ESP, namely, EOP.

In this chapter, the principal guidelines of our research are presented, their purpose being to justify and reinforce the important role played by English within the labor market. The teaching of English for Academic Purposes (EAP) falls within the framework of what is generally called ESP, taking place in essence, and as its name suggests, in an educational environment. The reasons for its increasing relevance is due to the fact that English has changed from simply being another foreign language into having become a universal form of communication in all walks of life.

EOP therefore encompasses a reaction against the conventional humanistic approach wherein both teachers and students abide by the academic objective of knowing everything about the language being studied instead of concentrating attention on those skills most relevant within the workplace in the often limited time allotted in the educational environment (Hutchinson and Waters 1987).

Nevertheless, perhaps the most important argument regarding selective learning is that adults need to obtain information they can apply outside the academic world. In this regard, we advocate the use of authentic material for making the connection between both worlds possible, the academic and professional, in a practical way. This theory is supported by Ellis and Johnson (1996, 157) who contend that the most useful material is that created by the companies themselves as specifically designed for its employees or potential customers.

However, David Taylor (1994, 6) begs to differ, maintaining that the language created within the academic context is already real in itself because students give authenticity to the material used. Thus, the dichotomy arises on many occasions in which the result is often the opposite of what was originally predicted. In our case, we shall establish the hypothesis that students can and do eventually learn artificial grammar constructions that they will hardly ever use when immersed in real situations, and this use does not validate its authenticity.

An additional aspect to keep in mind is that university students of EAP need to be capable of establishing and maintaining successful communication, but not necessarily as precisely as a native speaker does. The same occurs to company employees, whose language competence may contain errors that do not impede understanding or cause communicative breakdowns to be effective.

Thus, needs analysis in the workplace entails, according to Dudley-Evans and St. John (1998), some guidelines to be followed in order to cover the aforementioned circumstances.

> a) Knowledge, on the part of employees, of the communicative function of EOP.
> b) An understanding, on behalf of employers, of the expectations of those who need English in order to carry out a job.
> c) Knowledge, on the part of employees, of the theory and practice of EOP.
> (Dudley-Evans and St. John 1998, 60).

Furthermore, EOP envelops openness to the idea that cross-cultural differences do in fact widely affect the teaching-learning process. Sensitivity towards these differences should be developed to make communicative competence as effective as possible. We observe that some deficiencies exist within the academic system when the textbooks presently used were analyzed.

In essence, EOP is a kind of English which is not designed with an academic approach in mind. Rather, the final result pursues professional motivations behind language-learning in such a way that English will be effectively put to use in specific fields of expertise as might be medicine, technical engineering, commerce, or for that matter, any other area where people work and communicate across cultures. Thus, the key concept prevailing in an EOP course lies in the construction of a syllabus designed to meet both students' needs as future employees and teachers' methodology as planners and managers, both clearly geared towards using language in specific work settings.

In order to carry out the preparation of this academic program, it is first necessary to establish a distinction between the different interests and purposes our students aim to reach (Needs Analysis), through the study of English as a foreign language in degree programs unrelated to philology, compared and contrasted with the requirements called for on the labor market (Acedo and Edwards 2001). It seems that at this point the controversy clashes head on, as our students' needs do not always cover practical applications beyond the classroom, as we will observe later in the methodology presented herein. Some works on methodology have proposed a series of guidelines (Ellis and Johnson 1996; Nunan 1989; Richterich and Chancerel 1978), but the truth of the matter remains that when students finish at university, most of them are not technically ready to apply their knowledge of English to a labor context, if by preparation we mean being nearly as competent in English on the job as they already are in their L1.

Therefore, if we accept the premise that EOP is the academic experience our former students have been through at school, or are at present in the midst of learning, we encounter a series of adults who are either already employed, or about to embark on entering the work force, and whose language needs require using a foreign language to carry out their work.

According to Reeves and Wright (1996, 2), those who use English with non-native speakers within the workplace should be taught and trained to be able to speak the so-called "International English", that is, language enabling them to use a series of particular grammar structures, specific cultural conventions and specialized linguistic strategies. Teachers for their part should be capable of identifying the macro and micro skills in the bank of knowledge considered most useful for EOP students, while simultaneously bearing in mind that this information will be applied to real situations in a short to medium-term period of time.

Statistics show that an increasing majority of posts offered by companies nowadays require English as a necessary working tool, and for this reason, communicative activities should be the backbone of the teaching-learning process. On the same token, a proper syllabus, which is balanced and successful, needs to pay more attention to oral/aural skills, that is, to oral expression and listening comprehension (Edwards 1996). Such a problem was frequent in the past, and is still present nowadays, basically due to the un-reconciled abyss existing between the goals of the academic and professional worlds. Unfortunately, traditional language classrooms do not particularly lend themselves to fluent and flexible communication between teachers and students and, consequently, those

situations taking place within them cannot be considered comparable to the real world.

The classroom and the outside reality are all too often considered two exclusive and excluding entities, each operating of its own accord. However, in an attempt to avoid this division, the design of the EOP syllabus can contemplate the classroom as a physical space and an integral part of the real world, only differing from the latter in a series of conventions, interrelations and strategies.

3. Methodology

This avenue of research consists of three well-defined phases. The first stage deals with the study of the linguistic needs produced within the working world itself. In the second phase, students' opinions are analyzed once the experimental program, designed according to the requirements of the labor market, has concluded. Lastly, in the third and final stage, a follow-up analysis is undertaken of the participating students once they have obtained a job in order to cross-reference the validity of the empirical study.

As far as the first stage is concerned we enclose a real case carried out within well-known multinationals based in Spain. Our proposal suggests it be used as a guideline to follow when identifying students' and/or future workers' linguistic and communicative needs, as it consists of empirical research of the analytical process known as the "linguistic audit."

The "linguistic audit", a term coined by Pilbeam (1979), is a linguistic study whose main objective is to identify those strong and weak points of a company's organization, in terms of the communication process carried out in a foreign language. Pilbeam suggests that needs analysis be centered on those immediate activities the employee has to carry out and on the employee's personal characteristics. In this way, the company will be able to develop those cognitive skills that need further and more efficient expertise.

The principal aim of researching the communicative needs within the workplace is to analyze the identification of weak points and linguistic problems that need to be solved both in the long run and on a short-term basis.

Several different steps are envisaged in a linguistic audit, which is carried out either periodically, or each time employees are involved in a new project.

1) Needs analysis within the workplace is designed. At this stage, intended objectives are proposed.

2) The specific language problems of employees are identified: those at the present moment, those at the time of carrying out a project, and those projected with regard to future occasions.

3) In the third phase the necessary resources of the company are exploited, and a certain role is assigned to each employee. In other words, the company's main elements and resources are examined and identified.

4) and 5) In these phases, the real use employees make of English is observed, and efforts are made to improve their future communicative competence. It is at this very moment when needs analysis is carried out in order to exploit and develop individual communicative skills.

6) In this last stage, the results are reviewed and a series of impartial recommendations are given to the staff in order to improve their consequent performance levels.

As a result, the process followed in the linguistic audit aids the company in taking measures, through a series of strategic decisions, in order to modify and eventually improve those deficiencies encountered in the language communication of their employees on the job. But what happens when potential workers are still students? Why do they have problems later on when entering the working world?

Michael Lewis (1993, 39) states that teaching the students to develop their communicative competence in English (i.e. speaking) forms the basis for the development of other productive output like writing. As a consequence, this leads us to believe that a successful syllabus needs to pay more attention to those tasks perfecting oral expression.

This theory is supported by publications in both applied linguistics and methodology which contend that grammar is no longer the main ingredient in the academic recipe for language learning, but only one more element within the teaching-learning process (Devitiis, Mariani and O'Malley 1989; Celce-Murcia 1985; Beaumont 1991).

On the job, market companies are demanding a command of at least one foreign language, especially English, so we felt it was essential to find out if job candidates and current staff were fulfilling this requirement. Significant results were obtained through data collection by means of a questionnaire sent to employees in different companies (stage one of our project work) who claim to experience serious difficulties when communicating in English at work (Acedo Domínguez 2001). After analyzing the results obtained, we deduced that students who are technically ready for work after finishing their university studies, are not so well-prepared to apply their knowledge of English to a labor context. Consequently, we hypothesize that the language audit results in the work

place can help to design an improved academic program for students in the pre-labor stage.

4. The experimental program

We justify stage two of our research with the implementation of an experimental English Language syllabus designed and developed by Dr. Patricia Edwards (1999), and now in its eighth year of operation, with the express purpose of obtaining utility goals under a more practical and realistic approach—i.e., weaknesses found in the linguistic audit—. Priority is given to oral competence although it is complemented with the rest of the traditional skills in order to try to resolve, or at least to minimize, potential communicative problems that may appear in a labor environment. Thus, we elaborated and carried out a program dividing our scanty four-month period into different parts that obliged the practice of several oral tasks based on real or typified work situations.

The case study we develop herein is executed without obviating the fact that the rest of skills are the required complement for oral expression and comprehension. This approach is supported by Reeves and Wright (1996, 11) who maintain that the potential benefits of effective communicative competence can bring about favorable results when learners are no longer students but workers. Thus, it stands to reason that those companies that hire a well prepared staff as far as the use of English is concerned, will avoid having to spend a great deal of time on additional language training, or unnecessary investments in translators or specialized personnel in order to be able to carry on business abroad.

During the five years in which we carried out our experimental program with a group of 100 people, a thorough follow-up research process observed the evolution of our students, young people between 20-23 years old, most of whom are women (Acedo and Edwards 2005).

First of all the students of the EOP program were informed about the need to carry out five specific oral presentations as well as pass two written exams and several additional tasks. However, and although at first sight the desideratum seems to be ideal, the truth is that our pupils were not overly used to speaking in English in class and inhibition on their part became a real obstacle upon urging them to participate actively.

It was not our main objective, as this would be unrealistic, for our pupils to communicate their ideas as native speakers basically because fluency, pronunciation and intonation can hardly reach this level. Our main objective was however that these same students be capable of

communicating effectively and of using particular structures in specific situations. Pauline Robinson shares the same opinion and adds that

> A feature of ESP is that the language produced should be good enough, not necessarily native-speaker like. Additionally, many students of ESP require English for non-native speaker to non-native speaker communication. More knowledge is needed of communication strategies and effectiveness of the non-native professional users of English.
> (Robinson 1991, 32).

Oral presentations are carried out either individually or in groups, depending on the task assigned, and while students are being evaluated, the teacher centers attention on aspects such as intonation, fluency, use of appropriate vocabulary and the ability to communicate. An overall grade is assigned according to these criteria. At the same time that our pupils look for information about the topic they have been assigned to, they are developing both reading and writing skills as they usually write down the said information before presenting it in front of their classmates.

If, from a linguistic point of view, we pursue the fulfillment of a series of academic objectives, from the personal point of view, each student learns how to handle the task in a way that will be useful once the academic program has concluded. In this way, oral presentations draw students closer to what we understand by authenticity while at the same time reduce the distance between theory and practice.

Regarding the specific oral tasks, our students were asked to go on a simulated job interview in order to get a job. Previously, they had elaborated their CVs in English to have access to the selection process. Participants are divided into groups of five or six people and become first interviewers and then interviewees. Timing in this activity is totally flexible as it will depend on each student's capacity to communicate and answer the interviewer's questions. Once the interviews have finished, the Department of Human Resources decides who the ideal candidate is to occupy the post being offered.

As far as another task is concerned, students design a poster in which tourism in their region is marketed. For five minutes, they will be tourist promoters and will try to convince the audience to visit a specific village or area. Our intention with this task is to appeal to our students' motivation by counting on proximity and identification with the activity to provoke a positive response.

Once finished with this activity, they assumed the role of museum guides for ten minutes. Although it was challenging for them, it turned out to be quite successful. Again, linguistic competence was not alone on the

stage, as it was complemented with socio-cultural competence, an essential component within the teaching-learning process.

Finally, and before the written exam, students are required to act as tourist guides in any city in the world and, for ten minutes, should take us through the selected itinerary.

Although all these activities may seem complex for the students to carry out, the truth is that they made a great effort to give a touch of fresh air and authenticity to their presentations. All in all, we firmly believe in the idea that the experience was positive and definitely pushed beyond the borders of theoretical knowledge inside a classroom.

5. Analysis of the results

In order to have an approximate idea of the actual situation of the English language in the workplace (Phase I), and provide a basis for the implementation of the experimental program, a questionnaire was elaborated and sent to workers in different companies (Acedo and Edwards 2003). The questionnaire contains ten queries related to the use of English within the workplace, and surveys the use made of the four traditional language skills by those polled. The analysis of the obtained data, taking 300 tests as a sampling, shows significant results as far as the use of English is concerned. The descriptive features of those polled are approximately 40 per cent women between the ages of 23-35 and the remaining is represented by a group of men between 27-33 years-old. The majority of those polled studied Economics and Business Administration, and a lower percentage the field of Industrial Engineering.

Keeping in mind that our probe is undertaken with professionals in non-linguistic careers, we posed the following question: "Do you think English is given importance during university study?" (Figure 4-1), and as a result, the majority of those surveyed thought that this language was not given the importance it deserved, while an additional minority responded that it was not considered relevant at all. On the other hand, about a quarter of the group is represented by those who think English was quite relevant at university, while only the remaining 12 per cent think that English was considered to be of prime importance. This last percentage, although a minor one and thus insignificant, is nevertheless surprising as the vast majority of technical degrees already offers an academic syllabus in which ESP is included, if even with an optional status. Regarding the aforementioned majority who think English deserves more attention, it reinforces the hypothesis supported by ESP teachers who continue to

demand a more frequent presence of a foreign language when students are at the university.

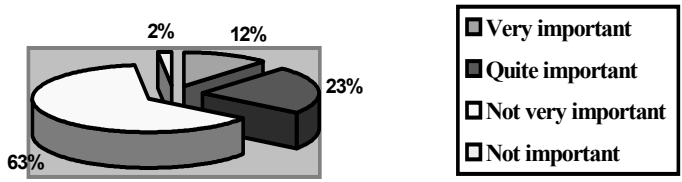

Fig. 4-1: Importance of English.

Another aspect which strongly draws our attention is that 88 per cent of those polled (Figure 4-2) feel that, while studying at university, they did not learn English in a way which helped them to make use of it in a future post. These results reinforce our thesis that English should be given the significance it deserves, especially if we take into account that we are integrated in a multilingual society where speaking at least one foreign language, preferably two, is considered the required norm. Nevertheless, it is equally true that overcrowding in universities makes it more difficult to give oral/aural communication the place it should occupy within the teaching-learning process, but at present constitutes a factor beyond the control of the facilitator.

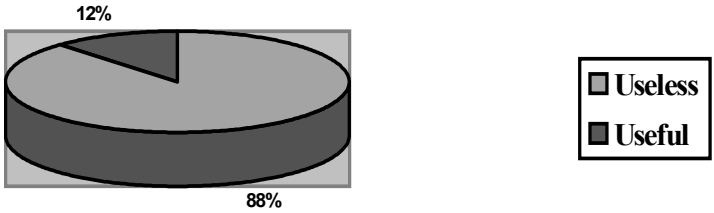

Fig. 4-2: Answers to "Was English useful when studying it at the university?"

When analyzing the answers given to the following question (Figure 4-3), in which we asked students to evaluate their knowledge of English, we can see that, even though they are frequently in touch with the language, only 17 per cent of those polled think they have a high level of English. Another 30 per cent say their level is an intermediate one, and an

overwhelming 43 per cent admit to having acquired just a basic working knowledge. This figure throws some light on our research findings.

From these results, we deduce that there are still many deficiencies that cannot be solved until some improvements, sometimes beyond the direct control of teachers, are introduced within the academic system. However, in order to achieve this purpose, academic authorities have to take all these circumstances into account.

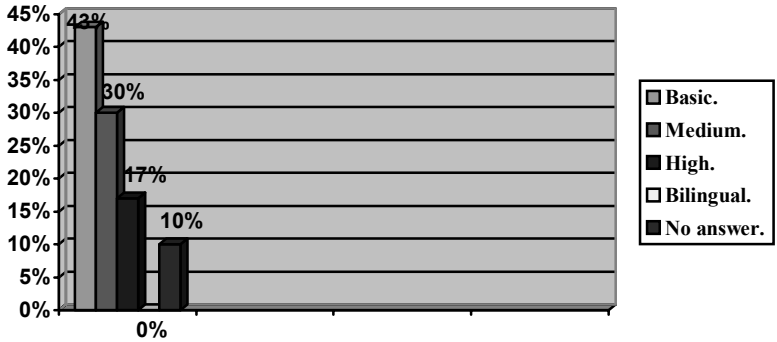

Fig. 4-3: Level of English.

The following question is related to the use employees make of oral skills within the workplace (Figure 4-4) and it was posed to obtain more details about the real application of EOP. However, we faced a great deal of difficulties along the way on the part of those polled, who were very reticent when it came to giving details about the activities they carry out on a routine work day.

On the one hand, a representative 62 per cent affirm that they frequently speak in English when they are working, while on the other hand, only 10 per cent use it very occasionally. The remaining 28 per cent confess to the need to improve their communicative competence in the language before even attempting to use it. If we take into account that most of them are supposed to use the English language every single working day, we can affirm that further linguistic training is necessary within the workplace, as well as better preparation at university.

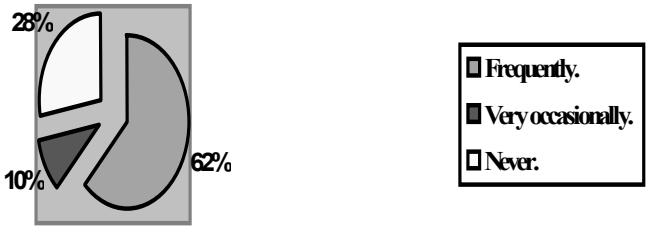

Fig. 4-4: Usage level of English within the workplace.

Finally, we posed the last question (Figure 4-5), "What do you think is needed in order to have an adequate working knowledge of English for Occupational Purposes?" It is significant, although not surprising, to verify that 70 per cent of those polled suggested (again) oral communication as the backbone of the process. In contrast, 11 per cent suggested attending courses abroad, which admittedly constitutes an effective method of acquiring a higher level of linguistic, cultural and communicative competence. In the following graph, we can observe in more detail those aspects employees consider essential when learning a foreign language. As far as the section dealing with other comments is concerned, a reduced number of the people polled contributed with suggestions such as the relationship established with foreign employees (native and non-native English-speaking personnel) so that they can converse with them. In addition, different options were offered in suggested activities such as talks, speeches or meetings in English, that is, activities where the main aim is to be able to manage situations occurring in the workplace.

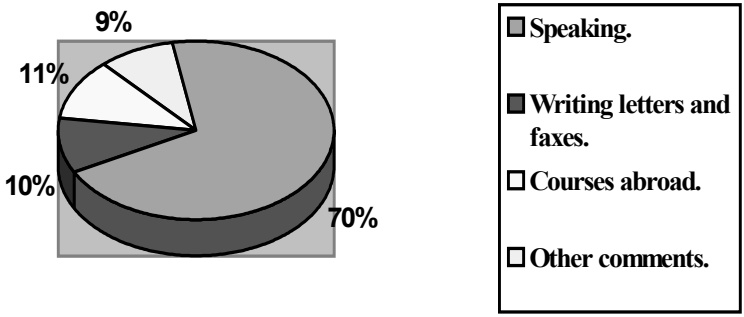

Fig. 4-5: Suggestions from those polled.

After having analyzed the data in the world of work, we came to the conclusion that many deficiencies existed, as far as the use of English is concerned, and that they could be partly solved by making use of the experimental English Language Program—i.e., Phase 2 previously described—. We carried out the empirical research with Tourism and Hospitality degree students as future professionals and main recipients of the study we will analyze at this point.

In order to obtain more reliable details about the validity of our probe in the classroom, two questionnaires (Rignall and Furneaux 1997, 107-109) were distributed to students at the beginning and at the end of the four-month learning period respectively.

First of all, we posed the following question: "How do you feel when communicating orally in English?" (Figure 4-6) As a result, the vast majority of students polled said that they felt "nervous" when faced with speaking in English, while the remaining percentages, insignificant numbers, chose the options "impatient" or "excited" as a predominant attitude, all quite often major obstacles in foreign language output.

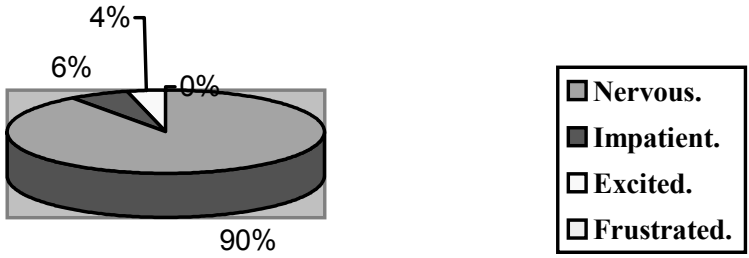

Fig. 4-6: Students' attitudinal answers to "How do you feel about communicating orally in English?"

In the same way, when they were asked what exactly they hoped to improve after completing the first four-month course (Figure 4-7), a high percentage of the group mainly singled out their pronunciation and grammar mistakes. This response reinforces our opinion that students often consider grammar and phonetics as the most important element within the teaching-learning process because this is precisely the type of syllabus design they have been trained in before entering university, although the situation is rapidly changing as oral fluency is becoming more frequently demanded at high school level too.

Fig. 4-7: Answers to "What do you intend to be able to do well by the end of the course which you have difficulty with at present?"

In contrast, when our students concluded the teaching-learning period in the experimental program, they were once again given another questionnaire, this time to self-evaluate their progress as learners, as well as to establish the true sense and validity of Phase 2 of the research project. A significantly favorable aspect is that the overwhelming majority (89 per cent) of those polled respond that, after the experimental program (Figure 4-8), they have improved their oral expression some, and that they actually feel fortunate for having been given the opportunity to communicate in a foreign language in this way, in spite of initial fears, discomforts and hesitations.

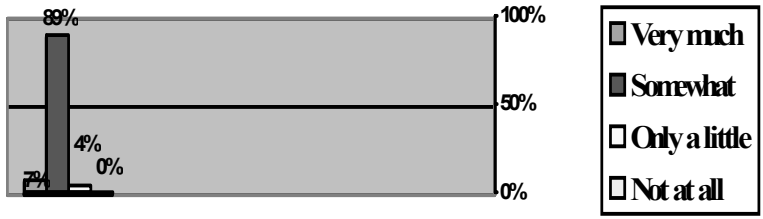

Fig. 4-8: Answers to "Do you think this course helped you to improve your oral expression in English?"

Finally, when we posed the question (Figure 4-9), "Do you think the skills taught in this course are applicable to other situations in the professional setting?" it is significant to verify that an outstanding 97 per cent think that the knowledge they have acquired can be applied outside the university and, as a useful working tool both in the long run (e.g. in their profession) and in a short-time period (e.g. the job search). This idea reinforces our viewpoint that English should be awarded the time allotment it requires in non-linguistic degree programs, especially if we

take into account that we are fully integrated into a multilingual society where speaking at least one foreign language is essential (Rico 2003).

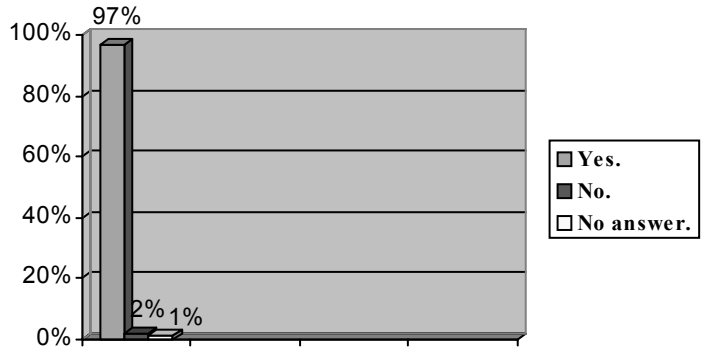

Fig. 4-9: Answers to "Do you think the skills taught in this course are applicable to other situations in the professional setting?"

Upon further examination of the results obtained, we encounter relevant coincidences between the objectives of the experimental program based on EOP needs, and the students´ perceived language acquisition.

As to be expected, writing and reading skill progress does not rival that of oral fluency. Nevertheless, it is surprising to find that listening skills are nearly neglected as a key objective by the majority of those polled. On the contrary, we firmly believe in the idea that speaking and listening skills go hand in hand throughout the teaching-learning process of a foreign language. Even though many students have mastered basic listening skills, they do not profess to awarding importance to listening activities. As linguists, we deem as obvious that oral / aural skills can make the difference between minimal and effective communication, and therefore, cannot be taught as separate entities, but rather as two necessary complements. Deeper reflection on the phenomenon of separating speaking and listening skills led us to question our professional perspective as the possible culprit of data misinterpretation on our part. Indeed it seems, as we corroborated in follow-up interviews with a sampling of our experimental groups, that students most certainly consider these skills are interrelated in any logical exchange between interlocutors. Nonetheless, they perceive their listening skills (input) as more

manageable than their speaking capacity (output), requiring, as they see it, more perfection for appropriate production.

Once our students finished their degree, we did follow-up research so as to validate our hypothesis and interviewed pupils who had participated in the experimental program (Phase 3). The participants belonged to the 1999-2000, 2000-2001 and 2001-2002 academic years respectively, and this made it easier to give them time (1-2 years) in order to find a job. Due to the different answers obtained, not without added difficulties at the time of locating a large enough sampling of interviewees, we have subdivided the posts into several categories shown in Figure 4-10.

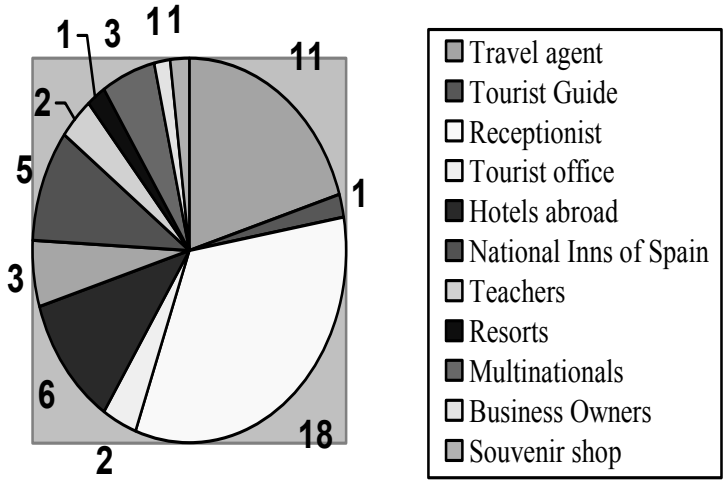

Fig. 4-10: Percentages of job types carried out by the participants

Once we investigated this aspect, we distributed a questionnaire among one hundred people aged between 22 and 25. Of all, 70 per cent are women and the rest men. Basically they work for private companies while a minority works in an international multinational or have gone into business by themselves. To a greater or lesser extent, the interviewees recognized having gone through difficulties to access the working world and although one of the compulsory requirements to get the job was to be competent in English in all the companies, the truth is that, only a few of the candidates had to go through the experience of passing a formal interview in that language. However, it seems representative that as we show in Figure 4-11 below, a great majority of the participants consider English as a useful working tool.

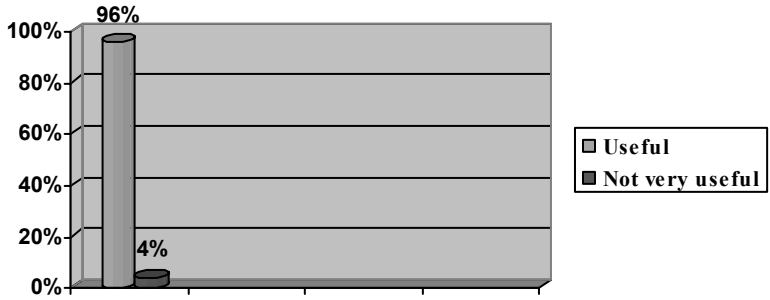

Fig. 4-11: Importance of the use of English at work

Oral fluency forms part of the daily working routine, a world in which the use of a foreign language is nearly compulsory together with a wide variety of activities detailed in Figure 4-12:

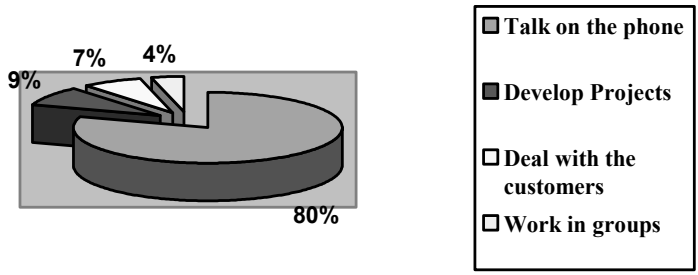

Fig. 4-12: Oral activities undertaken within the working world

In so far as the data is concerned, it is curious to note that although the interviewees have already finished their studies, they still feel stressed when they have to produce oral exchanges of conversations in a foreign language. The development of this skill entails certain difficulties leading into a type insecurity which can be partially solved in an academic environment with more extensive practice. Because oral skills are mainly productive they should be easier to put into practice as the person involved can choose and control the content of the conversation. However, and as we have proved once we analyzed the data obtained in phase 3, oral

fluency is a relevant factor at the time of gaining access to a specific post. According to *Nueva Empresa* (2004), more than 50 per cent of well-known companies in Spain admit that to select a candidate they choose a person who is effective at communicating in a foreign language over a brilliant student without linguistic knowledge.

Linguistic competence is undoubtedly one of the most important to facilitate both access to the working world and upward mobility of the workers, but it is also a skill which deserves more attention on the part of the academic authorities. In other words, although the use of a foreign language is not the solution to all the problems, it makes things easier for our students and future professionals, especially in a multilingual society in which the European Framework of languages is omnipresent.

6. Conclusions

First of all, the main objective of this study is to obtain valuable information as far as the practical use of EOP is concerned (Phase 1). The results obtained in the first phase of our research indicate that students who are ready for work after finishing their university studies are not as technically prepared as they should be when they have to apply their knowledge of English outside the academic context. In the same way, it appears that socio-cultural competence is essential from the point of view of quality at the time of acquiring successful communicative competence and an adequate command of EOP.

Based on the data obtained through the analysis of the results, we firmly believe that the students should have access to an active and interactive teaching-learning process that may be useful in the near future. It is, consequently, imperative to assume that a course or program based on EOP as the one proposed in the guidelines suggested in this article should have as its main aim to consider the teaching of English as an instrument and working tool.

In view of these findings, we justify the implementation of an experimental English Language Program (Phase 2) in an attempt to fulfill the task of preparing students to use EOP (which also involves a correct knowledge of extra-linguistic elements) in "real" work situations. As a result of having been exposed to specific potential professional situations, the students' perception after finishing the course indicates that a reasonable degree of success has occurred. We base this affirmation on the fact that the vast majority of those polled consider that the knowledge acquired can be useful in the near future. Furthermore, the course tasks involved have stimulated the students to participate actively in class and

have been highly motivating because they have made students have to cope with simulated work situations. The students' progress was monitored from the beginning to the end of the course, and with few exceptions, their marks considerably improved as the teaching-learning process advanced, especially in those tasks related to oral skills. However, further data collection in the systematic observation of students will continue in the second part of the experimental course in which writing and listening skills will constitute the priority.

The preference stated regarding oral expression and comprehension is once again evident (Phase 3), not only when holding a post, but even before getting a job, that is, during the interviews used as a means of selection. In this sense, the activities have apparently driven home the idea that true communicative competence makes future job seekers more marketable.

A general revision of the academic syllabus in non-linguistic degrees is needed so that a stronger support is given to the teaching of foreign languages. Bearing in mind that the European framework of languages is now at the verge of being put into practice, both society and university have to work together along the way and try to function as a unit. We subscribe to the opinion that a collaborative effort on the part of both the working world and academic institutions regarding communicative competence across cultural borders in specific settings is imperative within the framework of our international society if the concept of building a consolidated understanding is to succeed.

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CHAPTER FIVE

READING COMPREHENSION AS A TEXT / CONTEXT FOCUS IN TOURISM DISCOURSE

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1. Introduction

Syllabus design for degree programs such as Business Science and Tourism Studies in Spain currently show a timid backing for language learning, as can be witnessed by the reduced number of compulsory and mainstream courses offered (i.e. one in Business and two in Tourism). Given this general drawback, our ESP (English for Specific Purposes) syllabus need be as specialised and direct as possible in its content and pedagogical criteria. In other words, in an attempt to adapt the teaching program to the needs of the world of work, we base our design on the real demands and interests of both academic and professional environs in order to select those contents and methodologies appropriate to a communicative level of language acquisition (Edwards 2006).

In ESP, it is fundamental to carry out detailed questionnaires, interviews and tests for the measurement and evaluation of interests, demands and needs, not only regarding the students, but also among the professors of other subjects (the academic level), and business staff (the professional level) (cf. Munby 1978; Donna 2000). These so-called "needs analyses" are undertaken in order to find out and collect data relevant to the learning context and so that an effective syllabus can be provided. Being able to contrast the information obtained from previous academic years would in turn enable reconsideration of certain aspects of the syllabus and/or methodological processes according to the development or

changes in student profile, the study plans themselves, and even the working world.

During the 2002/03 academic year, we observed by means of measurement-level testing that more students obtain an intermediate to advanced level in the compulsory subject English I in the Tourism Studies degree than in years prior to this date (e.g. 1999/00). On the other hand, as derived from the questionnaire results compiled, the students in 2003 tend to make lesser use of everyday reading material such as the press, novels, popular magazines, etc. On the same token, through surveys taken during and at the end of the course, we perceive a noteworthy increase in the students' interest for the use of computers in the classroom: 57 percent consider them very important, wherein only 16 percent held this opinion in 1999.

Data such as this has guided us in the program design. The textbook selected has been *English for International Tourism* (Jacob and Strutt 1997) for the full course for some time as it provides the appropriate intermediate to advanced level required by the students. Nonetheless, as a result of the interest and demand regarding new technologies (internet, email, language-learning software, etc.), we complement the textbook material with various electronic resources each year. This line of action is increasingly more common in teaching, and students usually demonstrate a positive attitude towards the writing skill, as has been previously researched, for instance, in the case of email and online compositions (Curado Fuentes 2003a), which additionally coincides with major studies (e.g. Warschauer 2001; Warschauer 2002).

The main objective of this study is to evaluate the development of Tourism students in one of the basic communicative skills in language learning, i.e. the comprehension of texts. The main reason for our interest in the analysis of this skill is the aforementioned decrease in reading habits in comparison to previous years, in addition to the increase in preferences regarding the use of computerised resources. These two factors have become evident not only in the student questionnaires, but also in the daily reading activities on the web demanded in the business world (cf. Warschauer 2002), where future professionals of the tourist sector will be working. Thus, our research has been motivated on cognitive development by means other than the conventional text, namely, words and images in advertisements in electronic format.

Our study entails a follow-up of two groups of ten students each in English III for the 2003/04 academic year, the experimental group undergoing a significant number of practical classes in the computer lab, and the control group, traditional classes. The reading tasks to which both

the experimental and control groups were later subject serve to unravel some of the interrogatives involved regarding comprehension of specific factors, which vary from one group to the other, above all concerning the capacity to integrate content knowledge and mental sketches with the socio-cultural level inherent in the texts. The results lead us to conclude that it is fundamental for university level programs to encourage students towards continuing education in the English language, especially in activities and tasks, which, supervised by the ESP professor, address their academic and professional needs and preferences.

2. Theoretical basis

This section provides the fundamental theory upon which this type of methodology is developed for reading comprehension in ESP for third year foreign language students of Tourism Studies. Supporting ideas and notions in applied linguistics contribute to the process of obtaining specific classroom results.

2.1 The corpus of specific texts

In the first place, the concept of a specific corpus being subject to any type of special domain (as described by Hunston 2002) is of prime importance when defining the set of readings under analysis. Four premises on the use of corpora in foreign language teaching (based on Krishnamurthy 1997) advocate adopting corpus techniques:

> A corpus can be more comprehensive and balanced.
> A corpus can identify what is common and typical.
> A corpus can supply fairly accurate statistics.
> A corpus can provide countless real examples.
> (Krishnamurthy 1997, 37).

The balance and unity offered in a specific corpus refers most of all to its set formed by one or more genres, or text types, characteristic of a meta-environment where these texts will be frequently used. As explained by Ooi (1998, 35), the specific corpus in English must be representative of a sub-language where a particular genre is included. An example of such would be a corpus of commercial correspondence.

Likewise, the use of the corpora implies a language focus representative of the genre taught in class so that “typical target uses can be identified” (Aston 1997, 55). What is understood as typical language in these texts will be measured in the corpus. The so-called bottom-up

analysis related to any empirical study of corpus (Krishnamurthy 1997, 34) leads to precision statistics on the use of language in a specific context. For instance, as claimed by Gavioli (1997, 84), observance of KWIC (Key word in context) would be properly interpreted by the researcher-linguist, who would then be able to measure the relevance of language in the specific context.

KWIC is observed principally with the aim of revealing the characteristic meanings of syntagmatic structures, such as lexical collocations. Along the same lines, Gale, Church and Yarowsky (1992, 236) search for the most precise denotation of language, since there is a strong tendency (these authors claim circa 98 percent of the cases) that various users employ the same meaning of a word in a specific context. Moreover, as a result of this empirical observation, linguistic examples can be extracted for classroom evaluation, because we would be restricting ourselves to what is most useful and valid in the language for communication in the use of a particular domain (cf. Leech 1991, 11). The corpus then, according to this type of orientation, could be valued as a "servant" rather than "master" to the language teacher (Owen 1993, 185).

2.1.1 The written register

For measuring the degree of reading comprehension reached, we believe it is essential to determine the students' capacity to understand register. Recognition of register can be rendered through knowledge of three basic factors: Field, mode, and tenor (Halliday and Hasan 1985, 38), each respectively in reference to the subject area, or topic, means of communication used, and the relationship or rapport between the transmitter and receiver of the message. These characteristics define the type of register utilised in the text which is equivalent to the unit of meaning to be understood, especially in their handling as "indices in the form of particular words" (Halliday and Hasan 1985, 38). Exemplification can be made in the specific lexical cluster "land rift" as found in formal and academic discourse in geology textbooks (cf. Gavioli 1997, 85).

Our next point will cover the components of the written register dealt with in this research. Once the guidelines, or theoretical sketches provided have been carried out in the practice by post-assessment of understanding the written text, these serve as a definition of our approach to reading comprehension, although the bibliographical references cited are by no means all-encompassing for the study herein described.

2.1.2 Content knowledge

A key element in the conception of the field of register is the student's prior knowledge of the content, or in other words "schemata", or mental sketches, a concept defended in academic English by authors like Swales (1990), Schnotz, Picard and Hron (1993) and Beaugrande (1993), based on the previous ideas of Barlett (1932) and Fillmore (1969). Beaugrande (1993, 77) refers to the notion of mental sketches as a key academic skill: reading comprehension fraught through a set of the inner textual world of the reader with a particular piece of reading. In fact, the conceptual sketches interlock in order to describe linguistic relationships and lexical-grammatical structures in the texts (cf. Fillmore 1969, 365). The lexical–grammatical resources also provide description, as according to this author, the categories and relationships discovered in mental sketches are, in many cases, inter-lexical and intra-linguistic relationships both inside and outside of the text. Lyons (1995, 80) claims that discovery and insight into these lexical-grammatical relationships actually allow the reader to better understand the text.

2.1.3 Components of advertising discourse

The type of register analysed in this study is that of advertising. This choice is made as a direct response to the academic needs identified for the third year of English for Tourism degree students who will require promotional and advertising discourse in their future jobs (cf. Edwards and Curado 2003; García Laborda 2002). For this reason our interests lie in promotional texts as a register sample with the various lexical-grammatical components to be analysed within, in addition to the context of the said text, since as explained by Carter (1997, 12), "language always relates to specific texts and contents and usually to a context determined by social and socio-cultural factors." Thus, in promotional contexts, when assessing understanding of discourse, four of the eight main factors listed by Cook (2001) will be examined: 1) Substance, i.e., the physical material which carries or relays text; 2) music and pictures; 3) paralanguage: e.g., choice of typeface and letter sizes; 4) function (what the text is intended to do) (Cook 2001, 4).

The importance of these four aspects is directly related to text comprehension. In other words, its analysis for reading evaluation in our learning environment, together with assessment of understanding as regards lexical-grammatical resources and content, will take on significant

relevance when examining students' effectiveness for reading comprehension of promotional texts.[1]

2.1.4 Electronic means

Finally, the two most popular kinds of register modes are the written text encountered on paper and in electronic form. We emphasise the latter, as besides its extensive use for promotional messages, there is a need for analysing its use in language learning, particularly regarding reading and writing resources such as internet, email, chats, MOOs, etc. (e.g. Warschauer 2000; Warschauer 2001; Warschauer 2002; Hampel and Baber 2003). These authors highlight the interesting relationship formed in computer use as a social and socio-cultural tool (e.g. group work via email). We refer to the concept known as CMC (Computer Mediated Communication), which spreads at a fast pace in language learning courses.

What is significant about this medium for our study is that it offers the student the chance to autonomously access the text in order to carry out the task. In the words of Chapelle (2001, 3), electronic means used as a reading format facilitates learning based on the development of individual and group tasks and activities: "goal-based problem-solving activities which involve learning by doing." Our own research experience places confidence in this pedagogical method as will be explained in the following sections.

3. Methodology

The analysis method of reading comprehension for English III in Tourism is basically twofold: 1. lexical-grammatical data derived from the specific corpus, and, 2. the contextual aspects of the register in question. In this sense, a study is undertaken (prior to the realization of the reading comprehension experiment with the students) in order to identify the characteristics of text and context from sources in our corpus.

3.1 Lexical and grammatical data derived from the corpus

The corpus we are dealing with consists of 60 texts on tourist promotion specifically related to the following topics: hotels, package offers and deals, routes and excursions, natural landscapes, world heritage cities and artistic works of art in museums. Each thematic category contains ten texts. Selection has been made on the basis of key importance

and appearance in the aforementioned textbook by Jacob and Strutt (1997), containing various reading comprehension activities developed around these topics. The texts are obtained in full from the internet, specifically from well-known web sites as will be seen further along. The objective is to collect short readings (of 250-850 words) in the advertising or marketing sectors for tourism purposes.

The global corpus contains 40,808 words (each tabulated: tokens) and 10,560 different words (without tabulating repetitions of each: types). Therefore, there is an average of 18.9 different words per thousand (measurements per thousand tokens referred to as the "standard ratio"—cf. Scott 2000a—, obtained from the function "wordlist" in Scott, *WordSmith Tools*—Scott 2000b—). The appearance index of different words (an average of 18.9 percent) is much lower than an academic corpus (e.g., James and Purchase 1996)—which contains readings from books on business and economics—, with a 36 per thousand standard ratio. In principle then, we can anticipate a large number of lexical repetitions in our corpus of tourism texts.

Through the use of the aforementioned "wordlist", we build a list of words extracted from all the corpus resources, organised according to the six labelled categories. We seek, in this way, the identification of content words (nouns, verbs, adjectives and adverbs) in a first sweep, and grammatical ones (articles, prepositions, conjunctions, pronouns, non-qualifying adjectives, auxiliary verbs) in a second round of revision of the list.

First, six frequency lists are separately created (these correspond to thematic categories) so as to construct the so-called "detailed consistency list" (DCL), which examines the frequency and dispersion of words throughout the corpus and in each of the frequency lists of the categories. Through this method, we obtain a total list from which we select the content words situated on the leading 100 positions (see the left-hand column in Table 5-1). Because of their elevated frequency and distribution (regularity) in the texts, these words can be classified as semi-technical (Kennedy and Bolitho 1984, 57). At the same time, these words may possess a more restricted semantic capacity according to the contexts in which they are used, for example, in technical contexts (e.g. within each thematic category) (Trimble 1985, 116). As a matter of fact, we are dealing with primary vocabulary with a semantic variation depending on the context of use (Cowie 1997, 130).

Content words	Grammatical words
Country	With
Way	By
Central	As
Own	Over
Still (adj.)	Which
Best	Off
Offer* (verb)	Out
Now (marker)	Back (prep.)
Beautiful	Will (aux.)
Accessible	Into

Table 5-1: Selected words from the corpus of promotional English for Tourism

* = including all derived verbal suffixes

Secondly, we select the grammatical words from the DCL, as seen in Table 5-1, although somewhat more subjectively than those of content. In analysis-based corpora, the researcher's discretion is equally relevant according to Leech (1991, 14), especially when the linguistic task is applied to teaching. For this reason, the grammatical words do not strictly correspond to those most frequently found in the DCL, but rather those that tend to present greater difficulties for students of Tourism Studies. The ten most common of this type are presented, thus coinciding with the same number of the content words.

The next step in the preparation of corpus data is word treatment with KWIC techniques. The typical use of words in context is then located. "Concord" in WordSmith Tools proves to be of practical and valid use for this task, specifically the functions "Clusters" and "Collocations." Since the quantitative analysis of the lexical and grammatical data obtained reaches far beyond the scope of this study, we will simply point out that we are dealing with general or commonplace linguistic constructions (when the examples of use are found in more than one thematic category), and, with more restricted profile constructions (when the expression is found in solely one thematic category). There are also typical semantic characteristics, mainly associated with the word examined. For instance, combined content elements are frequent (e.g. "central district" preceded by the name of a city with the Saxon genitive: "Vienna's central district"), as well as the appearance of grammatical element + semantic preference or

association (e.g. the preposition "over" in reference to amounts of money, meaning "more than", but also used for temporal space, especially for years, equivalent to the idea of "for some time"). Finally, different grammatical structures like "as + adjective + as" are identified.

The resulting information of this first stage analysis contributes to explaining, in a broad sense, the type of characteristic language related to the promotional text for tourism. For receptive reading tasks of advertisements and promotional catalogues in this context, some more specific linguistic forms are required for evaluation indexes, as we will see in the section on Results.

3.2 Contextual aspects of register

As mentioned before, register description leads to the observation of three aspects: Field, mode, tenor. The first part of our research consists of six thematic categories outlined in the previous section. The common denominator is promotional discourse in some kind of resource or attraction (hotels, package offers and deals, and museums), and the place of touristic interest (routes and excursions, natural landscapes, and world heritage cities). Effective reading of this type of text is fundamental to the academic and professional area of Tourism as future technicians, managers and promoters of tourist information must have a command of this type of language in order to "sell" the product (in English, or for that matter, in any language, including their L1 or native language).

Mode, or the means by which readers access this particular discourse, is largely electronic. It corresponds, in the case in point, to a "physical substance" in which the promotional discourse is transmitted (Cook 2001). The experiment described in the Results section is wholly carried out by computerised means (i.e. web texts). Our intention is to determine if this medium produces positive effects on reading skills. The texts of the corpus used by the students can be found at highly recognised web sites in the tourism sector. The sources are considered as reliable and professional as any paper source. For selection of hotels, package offers and deals, the international publications of *Rough Guides* suffice as complete and illustrative. On this website (see bibliography) we can access a large number of attractive texts. In addition, various web pages of sites like Green Travel and Away Travel (see bibliography) provide an array of textual examples of tourist promotion on natural landscapes and get-aways to many different countries. In order to pinpoint suggestive descriptions of the historical quarters of emblematic cities worldwide we can visit, for example, travel-o-city (see references). Finally, an extensive list of

museums in multiple destinations can be viewed at the New York museum site (see primary sources in the bibliography).

With electronic means, another contextual aspect of relevant promotional discourse is the inclusion of numerous digital images, especially of photographs, illustrating the resort or promoted destination. Cook (2001, 28) points out that this visual phenomenon is quite characteristic of the Information Society. Texts that tend to incorporate fewer images generally deal with packages, special offers, and museum pieces containing more text used to describe the product or service on display.

As far as texts of natural landscapes and excursions are concerned, they not only contain a significant number of pictures, but they are also accompanied by a musical language, associated as Carter (1997, 202) claims, more with oral than with written discourse. To illustrate our point, consider the phase "Take your pick of these beautiful spots in the Sunshine State and make the most of your Florida beach getaway", whose rhyme and jingle are easily transmitted when read out loud.

In the electronic format of advertisements it is equally interesting to note that meaning can penetrate even the kind and size of the print employed. In our corpus, the printed text tends towards oversized headlines and phrases that evoke natural landscapes and special deals on routes or excursions in the open air (see an example in Figure 5-1). Likewise, these resources usually include symbols from the world of computer technology such as @, *.com*, *www*-, , in order to draw the customer's attention to the fact that the services of a countryside resort are integrated on the web (Goddard 2002, 96).

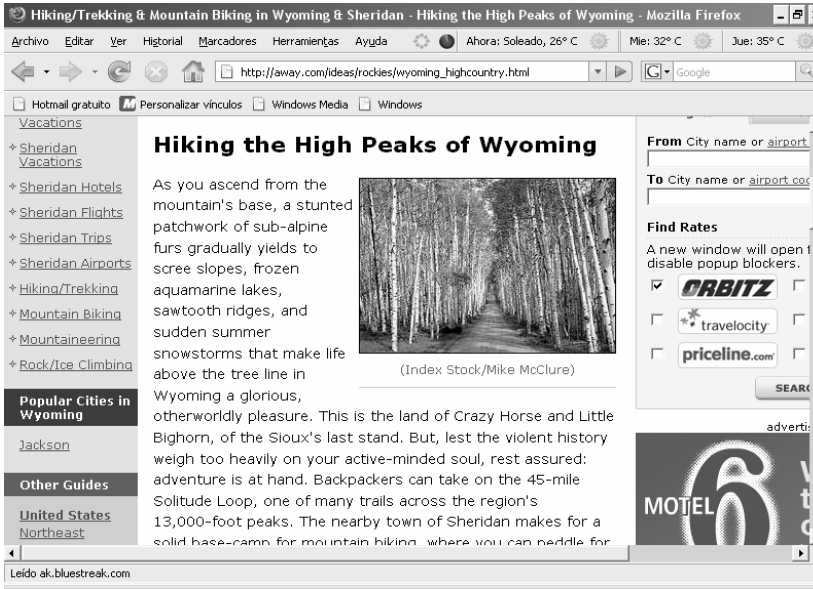

Fig. 5-1: Text in Internet promoting tourism in the great outdoors.

Last but not least, under the contextual aspect denoted tenor, or the rapport / relationship established between the transmitter and receiver of the message, the central factor under evaluation becomes the function of the text, that is, the purpose for which the message denotes meaning for the receiver.

It is possible to perceive a general function in all texts that suggest the use of a service or visit to a destination to the perspective client. In particular, however, each thematic category holds a dominant characteristic function. For instance, the type about the art pieces in the museum tries to encourage the reader, on a cultural level, to feel attracted by the content of the institution, and to visit the city where the museum is situated in order to enjoy its exhibits. On the other hand, the descriptions of natural landscapes intend to create a dreaming sensation about these environments in the reader (proof lies in an abundant number of photographs and even short sample videos). Evoking idyllic daydreaming is quite typical of this discourse, already analysed previously (cf. Edwards and Curado 2003). Regarding the promotion of hotel services, package deals and special offers, the focus tries rather to emphasise a great price for the product, a priority factor for most customers (ergo, the discourse tends to be denser and more explicative).

4. Results

For evaluation analysis of the reading comprehension skill on tourist promotional material, the students in English III of the Tourism Studies degree were divided into two groups of ten each. The first group is denominated Group E (experimental) and the second one Group C (control) adopted from the terminology coined by Campbell and Stanley (1966). Both groups are required to perform the same comprehension exercise in writing, with the qualitative difference being that Group E develops some activities with the corpus of electronic texts, whereas Group C does not. The aim is to find out whether the reading comprehension test taken later produces any significant differences between the two groups, and if so, where and how these are established.

4.1 Results of the experiment

The students in Group E access the computer lab at the School of Business Science and Tourism Studies (Extremadura, Spain) for five hours (one hour per day for a week). There they are expected to work individually and in their groups with the corpus of promotional tourist material in electronic format on various exercises and tasks assigned to them on line. The activities are set up sequentially, so that, first, we take note of their degree of comprehension on the macro-structural level of the text, followed by their development of information reception with regard to the syntagmatic phases of language as established by Aston (1997) in the analysis of exercises made for evaluation of corpus data, as well as in our own research (cf. Curado Fuentes 2003b). There are three types of tasks carried out in the computer lab: Questions related to register, Questions on the lexical-grammatical data, and Lexical activities in the texts.

4.1.1 Issues concerning register

For the first two class hours, work is centred on general aspects of register in the texts. Students are assigned six promotional texts each (separately saved in each of the ten computers they use) so that the individual participants have access to an example of all the thematic categories, as well as to the corpus to be exploited. The questions to be resolved are the same for all the students (see Appendix A: Activity Register for Group E).

The intention behind the questions is to introduce students to the mental processes to be carried out for the analysis of text and context in

this register. This process also allows us to find out in a practical application if the students' answers confirm the data in our first methodological analysis (see previous section). Furthermore, we can interpret the initial capacity of the participants to "anticipate" the context of the promotional text by making use of their mental sketches formed by a previous encounter with these messages. We observe that this type of "schemata" tends to be more prevalent in students who answer the questions without hesitation or finish faster.

Answers are sent to the teacher by email and returned with brief comments about the content, but not evaluating format. The purpose of this first two-hour exercise is for all students to respond to the questions and to receive some feedback on their performance with comments like "OK, but maybe you could have included another feature related to the facilities", "OK, but maybe other words related to nature could be included", etc. Some students even go over their answers in view of the comments received from the teacher, modifying them with an explanation or key word. The final results are summarised in Table 5-2.

Lexical Key	Topics	Content	Context
Nouns: 56%	HOT: 10	HOT: 6	HOT: 7
Adjectives: 26%	PXD: 4	PXD: 2	PXD: 0
Verbs: 10%	REX: 4	REX: 2	REX: 1
Others: 8%	NAT: 9	NAT: 10	NAT: 10
	WHC:10	WHC: 9	WHC:10
	MUS: 10	MUS: 1	MUS: 2

a. HOT = Hotels
b. PXD = Travel packages and deals
c. REX = Routes y excursions
d. NAT = Natural Landscapes
e. WHC = World Heritage Cities
f. MUS = Works of art in museums

Table 5-2: Percentage of word types valued as lexical keys and the number of students who used them in their responses to different contextual aspects of the advertisements

In Table 5-2 we observe that the majority of the key words analysed as such corresponds to nouns and adjectives (e.g. “hotel”, “luxury”, “modern”, “culture”, etc), while few cases record other categories such as proper names and abbreviations, which have been understood as lexis related to the topics (e.g. “FlaUSA”, “British Airways”, etc). Some verbs stand out for their semi-technical value (e.g. “offer”, “travel”), however, only a mere average of 1.8 verbs were included by each student (in contrast to an average of 10 nouns).

On the other hand, with regard to what texts were most worked on in order to respond to the questions on content and context (questions 2 and 3 respectively from exercise 1 in Appendix A), we observe that the advertisements on natural landscapes and world heritage cities, containing a greater use of images and colour to attract tourists, are the most favoured (Table 5-2). Notwithstanding, some students chose the descriptions of hotels and their facilities, with customer-attracting phrases like “this hotel gives very good activities for the summer”, or “I think that the cost is very good in the hotel.” Finally, the topics least recognised were those offering package deals and trips, which were misinterpreted as hotels, plane trips and even cruises, void of mentioning that all these consisted of a special offer. The topic of routes and excursions was not recognised as such in some cases, but was rather viewed as a promotion for residential areas or country cottages.

4.1.2 Issues regarding the lexico-grammatical data

In the third and fourth hours of the experiment on pre-evaluation of reading skills with Group E, the corpus is exploited with the aid of the lexical management tool (i.e., "WordSmith"). At this point, each student works on the full corpus of 60 texts, also saved in the computer hard drive. Participants are requested to empirically identify five key words in each thematic category of texts, using the function "keywords" in WordSmith in one hour's time. Immediately following this time limit, they should hand in two or more typical constructions which include each of the key words after having made an observation of KWIC with the "Concord" function. In the hour prior to this activity students became familiarised with both "Keyword" and "Concord" functions in order to select the text, make their list of words and formulate lines of concordance so as to clarify their lexical-grammatical results.

These answers are also sent back to the teacher, however, this time, they are not commented on, rather they are re-sent to a fellow student for revision and comparison to his/her own results. Some participants (not all) also included a comment on their classmates' exercises in terms of suggesting alternative key words and/or typical structures they have otherwise selected. In this sense, cooperative work of this type tends to render productive results in the identification of constructions like "heritage site" in world heritage cities, "valet parking" in hotels, or "easily accessible from the state highway" in package deals and offers. In all, 112 expressions were located, 67 of which were valid constructions, i.e. collocations and phrasal units as in the examples above. There were a total of 13 different constructions offered by the students (three of them rendered between 8 and 11 valid options, while the rest fell between 2 and 8). The remaining non-valid constructions were types such as "of the visit", "and culture in", etc, that is, examples of "clusters" lacking domain-specific meaning.

4.1.3 Lexical tasks in the texts

Finally, the fifth class hour in the computer lab revolved around activities which demanded student competence in recognizing the use of words in different texts. We used "Cloze" and "Fill in the gap" type exercises with an electronic program, "Hot Potatoes" (Half-Baked Software 2003) derived from some of the texts in the corpus (Rico and Edwards 2004). The kind of vocabulary to be identified in these tasks is semi-technical (data originating in the quantitative analysis). The work was

completed and handed in by pairs through email so that students could discuss the responses. In these activities, two pairs of students showed no mistakes at all, while the rest had very few mistakes (less than 10 percent).

Group C's tasks during the 5 days of experimentation with Group E were traditional class activities of reading comprehension and writing output. They were also required to make up a brief advertisement for promoting tourism resources: e.g. accommodations, world heritage cities, and natural landscapes.

4.2 Results of reading evaluation

Once the experimental period in the computer lab had concluded, both groups E and C took a reading comprehension test on tourism advertisements. Specifically three readings were handed in on paper (containing 201, 307 and 365 words each). The first text (labelled A in Appendix A) offered lodging and relaxation at a luxury English manor (Rookery Hall), the second one (B) a canyon tour of Oak Creek in Arizona, and the third (C) a guided tour through the historic centre of Prague. In Appendix A, (in "Reading Comprehension Exercise for Groups E and C"), the specific comprehension questions formulated on these texts are included, their purpose being to delve into the topic (question 1), content (question 2), context (3, 4 and 5), function (6 and 7) and lexis (8, 9 and 10). The results obtained in terms of correct responses are summarised in Table 5-3.

	Group E	Group C
Topic	90%	80%
Content	70%	40%
Context	73.3%	56.6%
Function	65%	40%
Lexis	80%	63.2%

Table 5-3: Percentage of correct responses in each group regarding reading comprehension categories.

The major differences between the correct responses of Groups C and E (Table 5-3) lie in the area of content and function, where we observe that Group E's correctness is 30 percent and 25 percent better respectively. The greater level of command demonstrated by Group E in the remaining categories is also significant, as can be seen in the areas of lexis (a difference of 16.8 percent) and context (a difference of 16.7 percent). The percentages are obtained separately for every question or group of questions in each textual factor and textual evaluation so that 70 percent for Group E under "Content" means that the responses of the students on question 2 rendered an average of seven out of ten points.

More specifically, we find that the total identification of the content information in sections b, d and e of question 2 is lacking, and stands out as the qualitative differential between Groups C and E. As regards function, Group C's errors are more pronounced in responses a and b to question 7, as well as in a and c in question 6, although to a lesser degree. In the context section, Group C's mistakes increase in comparison to group E's, especially in a and b—exercise 3—, and a in exercise 5. Lastly, the words underlined by Group C in the vocabulary exercises are less effective in comparison to those underlined by Group E in sections a and b of question 8, and, in b of question 9.

5. Conclusions

The results in exercise 2 (see Appendix A) implies some notions on learning processes to take into account for the reading comprehension of the promotional material of Tourism. In general, the data in Table 5-3 indicates that the students who performed their activities using the corpus of promotional electronic texts in the computer lab were more effective at reading comprehension than the students who read advertisement material in the traditional class.

Exploiting the material available in the computer lab, in the case in point, turns out to be more positive for Group E students, who demonstrate

a broader view of the ideas transmitted in the texts than do Group C students (test question 2). Likewise, it seems that the differences show a better preparation on the part of Group E to anticipate information, as well as a capacity to capture multiple ideas in a text. It is also relevant to conclude that Group E possesses a sharper ability to visualise the socio-cultural factor through a greater understanding of the text functions (questions 6 and 7). Knowledge of author intention, or the social and cultural purpose reflected in the texts, appears to be more fully understood by Group E. A straightforward example which illustrates this skill is the attraction for the client to visit Rookery Hall as a place of leisure and retreat in the English countryside, in addition to the possible evoking sensation for the reader regarding this old English mansion where numerous movies have been filmed and carried straight into the tourist's living room, as was commented on in class.

Similar evidence of socio-cultural recognition has been manifested in the greater number of Group E's correct responses in questions 3 and 5 of the test, wherein more students from this group captured the importance of the pictures in the Rookery Hall advertisement being an ideal, enchanting spot for relaxation and "daydreaming." On the same token, they demonstrated a solid fundamental understanding on interpreting the relevance that the size of the headline plays in the text on Oak Creek: "Oak Creek Canyon, Arizona Autumn Foliage, Hike in the Spectacular West Fork", thus indicating a better recognition of the advertisement of the tourist attraction as a natural phenomenon. Moreover, the expression of the most effective key words on the topic of excursions in natural settings (section a in question 8), and on historic sites and cities (section b in question 8), leads us to deduce that Group E arrives at a better understanding of the discourse in these texts. Group E also scores a higher number of correct answers en part b of question 9 when considering the appropriate identification of constructions or lexical combinations, in particular, verbal ones. Therefore, in the evaluation of lexis, we contend that the vocabulary activities carried out in the computer lab (class hours 4 and 5) have favourably contributed to the students' better familiarization with key words and word combinations in this genre.

Broadly speaking from this research, we conclude that the academic environment we move in with students of English for Tourism Studies requires a continued focus in preparation for application of their knowledge in the world of work. Activities and tasks such as those proposed in this study may be beneficial in accomplishing this aim, since not only do students work with authentic material in a specialised corpus, but also, because they employ techniques of self-access and information

management which contribute to the development of professional competence (i.e. work in computerised environments and team work).

Particularly with regard to our analysis of reading comprehension skills, we believe that this process is successful when applied to a specific context mainly because of the students' need to decipher meaning from the promotional discourse for the tourism sector. The various aspects, both textual and contextual, processed by means of exercises and tasks such as those described, lead to an effective clarification of messages. From our perspective as educators / researchers, we subscribe to the theory that this type of experimentation serves to lead the way towards establishing an operative approach in our classes within the university context.

Notes

[1] Other factors listed in Cook (2001), such as the inter-text or situation, are of little relevance to the purposes of action research for this study since these are elements hardly perceived by the student of Tourism Studies, as we have been able to confirm in various tasks.

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Part III

Information Technologies and Specific Communicative Purposes

CHAPTER SIX

ADAPTING NEW INFORMATION TECHNOLOGIES FOR PRACTISING ENGLISH AS A FOREIGN LANGUAGE APPLIED TO ENGINEERING

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1. Introduction

Slowly but surely new information technologies (ICT) have entered the classroom. The computer was first introduced into teaching in the 60s, while the 80s saw the advent of the use of computers in language teaching and learning. The first CALL (Computer-Assisted Language Learning) programs were mainly used for manipulating words and phrases as well as for student assessment. At the beginning of the 90s, when computers were more powerful and multimedia programs were available, the use and collection of courses on CD/ROMS were by then common practice in foreign language teaching and learning (Pérez-Llantada and García 2000), as was the installation of programs on the student's PCs (use of CALL). By 2000 the first attempts had already begun in teaching and learning contexts to use what was to develop into one of the most promising fields in teaching: Internet. Today, thanks to internet, education has a remarkable tool (Windeatt, Hardisty and Eastment 2000, 6; Márques 1998) for providing students with learning material in the form of hypertext and multimedia, accessible via Web pages. In addition, internet offers huge research potential as it is a never-ending source of resources and information as well as an essential communication tool connecting millions

of users whose working language is English, which means that the language can be practised beyond the four walls of the classroom either with teacher-designed materials or with services available via the web.

The vast majority of language teachers are computer literate, i.e., they are computer users who can prepare teaching materials for their students to practise and reinforce their linguistic knowledge. But the problem lies in the difficulty in making the material accessible via the internet. The creation of Web pages requires specific programming knowledge which only very few foreign language teachers have (Teeler and Gray 2000). Besides, programming is hardly the task of the foreign language teacher whose job is to focus on the preparation of teaching materials. To come to terms with these issues, many tools have appeared which facilitate the publication of content on the Net, e.g., CMS (Still 2005), i.e., "Content Management Systems." However, at the time when the development of this project was embarked upon, the CMS posed some obstacles: They did not allow the teacher the possibility of making different exercise types available with automatic online assessment. Instead, the teacher could publish the exercises on the Web as plain documents, e.g., in pdf and doc. formats. Thus, the student could access the documents, print them out and, when necessary, return them to the teacher for correction. This process did not represent a significant improvement with respect to the usual practice whereby the teacher would leave notes and exercises at the photocopier.

Similarly, in the case of the theoretical part, only plain documents could be accessed; it was not possible to include the theoretical texts in HTML (hypertext markup language) because integrated editing functions were not available to allow the teacher to format the text (bold, italics, insertion of images, mathematical characters).

While in general the CMSs did permit access via hyperlinks from a theoretical section within a given unit to the related exercises, they did not, however, provide the possibility of direct access from the exercises to the relevant theoretical explanations. The collaboration of a technical programmer was more often than not called for when using CMS precisely because they were not designed for specific purposes, which meant that they were complicated to use.

Although the first two obstacles mentioned have been addressed and implemented to some extent in current CMSs, the last two remain unresolved. These two drawbacks prompted us to develop our own platform, one that would allow us to overcome those obstacles and realise the following objectives:

a) Overcome the impediments the language teacher with no programming knowledge is confronted with in making didactic material accessible via the Net.
b) Provide our students with an online English course adapted to their field of study and which they could have access to whenever and wherever, so that beyond the classroom they might share the enormous volume of information available on the internet, consult libraries and archives, contact the teacher, colleagues, and even other internet users throughout the world (via chat, forums, FAQ, links etc), and provide an environment of active exchange where questions and suggestions would receive almost instantaneous response.
c) Provide the student with automatic feedback on exercises as they are being carried out so that the student may check for errors, receive advice on whether or not to repeat the exercise and on which theoretical concepts need to be worked on. In addition, provide access to the results of the exercises so as to offer the possibility of recording a student's progress, highlight any areas that need be seen further in class, indicate whether more practical exercises in a given area ought to be added, and so on.

In order to build the tool that would provide us with the necessary requirements, we combined new technologies with linguistics; the result has materialised in the form of an e-platform called "INELMEC" (INglés en ELectricidad y MECánica), i.e., English in Electricity and Mechanics, which can be accessed via the Web (see bibliography). Access to the course and the services INELMEC offers is free, so anyone can register. However, any foreign language teacher wishing to introduce new material in INELMEC or wishing to modify any of the existing content must apply for a teacher account which can be obtained from the authors of this project once the application has been approved.

The part of INELMEC reported on here is the first stage in a bigger project, and has been developed as part of an applied research project financed by "la Junta de Castilla y León" (regional government of Castile and León). We have spent three years on this project.

The core component of INELMEC is the on-line course in ESP (English for specific purposes), in this case, engineering. In the first stage the focus in terms of design and content was related to practice in the following skills: i) Reading comprehension, including practice in related sub-skills and reading techniques that enable the student to extract information from technical texts, ii) grammar, indispensable for anyone wishing to acquire another linguistic system, iii) technical vocabulary, another essential, related linguistic sub-skill, and iv) written expression, integrated in the activities designed for the practice and consolidation of all

three aforementioned skills, to provide preparation for the effective use of English in their own writings. Two further skills, i.e., oral expression and comprehension, will be dealt with in the second part of this project.

2. Method

Thanks to the close collaboration of two different work groups, those in charge of the software platform design and development on the one hand, and those in charge of the linguistic tasks on the other, the objectives of the project have been accomplished. The work was carried out in the following phases:

Documentation: A search and review of the literature related to the topic:

i. To study the state of the art related to new technologies in foreign language teaching and learning;

ii. To draft a student profile, analyse linguistic needs and set the level for the linguistic material in order to commence a search for and selection of course content..

Development of the computer science support: First the necessary software specifications were determined as follows:

a) That the teacher with no knowledge of programming can enter and modify the texts, exercises and explanations;

b) That the exercises carried out by the student be corrected automatically and the results made visible;

c) That tools be provided to enable student-teacher and student-student interaction;

d) That the interaction architecture would afford easy access between the system and users wherever users might be.

In order to comply with the required specifications the development of an application with dynamic Website architecture with access to databases was decided upon. Secondly the languages and tools to be used were selected, in the case of dynamic Web programming language, an open and freely available specification, JSP (Java Server Pages), was chosen. Developed by the Java Community Process for the development of dynamic content on the internet, JSP provides an attractive alternative with respect to other dynamic Web programming technologies such as ASP (Sun Microsystems). JSP offers the advantages, among others (Qusay 2003; Hanna 2002) that it is compatible with every Web navigator as long as the JSP code is on the server and that it is compatible with almost all Web servers thanks to the widespread use of technologies based on JAVA.

JSP allows for the separation of content and its presentation. The presentation is made by means of HTML or XML tags and via JSP tags with JAVA code being added to the dynamic component. It also permits the re-use of software (objects) thanks again to the total integration of JAVA. This is a particularly important aspect as it facilitates the use of complex objects that would be difficult to manage in traditional technology. Another important characteristic is the possibility of using JavaBeans in the handling of forms as the objects are automatically filled in with the data sent by the user who therefore need not worry about having to do so explicitly. As JSP uses JAVA to generate the dynamic content, the entire scope of JAVA's API is available to the developer.

The database where all the application data is stored, i.e., teachers' and students', course material (texts, exercises, explanations), was developed in MySql. The reason MySql was selected is that this database is the most widespread open code in the world, recognised for its speed and reliability (Widenius 2002). The Web Server used is Apache along with the container Tomcat which allows JSP page building (Proyecto Apache Tomcat).

Worthy of note is that all the tools and languages used are free, multi-platform, open source software utilities that can be downloaded/installed on the majority of modern operating systems (UNIX, Linux, Microsoft Windows) by both customers and servers.

The third step was the schematic development of all the application screens, their functions and the design and implementation of databases. Finally, the application was programmed, and any errors detected in the trial phase were corrected.

The production of linguistic material and exercises went as follows: Once the needs and levels of the students were set, the course texts were selected and adapted, the reading comprehension, language use, vocabulary and grammar exercises were programmed, and the explanations for carrying out the grammatical and language use tasks were written. All the linguistic material was selected, prepared and written for the course. The sentences used in the exercises are original and were written exclusively for this project.

The introduction of the linguistic material into the software was done as soon as the software was available, so that the assigned personnel proceeded to introduce the course material.

Testing the adequacy of the application was performed after all the material had been introduced, the first trials carried out, and the functioning of the platform found to be correct, with only a few random oversights detected, e.g., wrong solutions or the absence of a solution, which were all due to the enormous quantity of linguistic material that had

to be introduced. Once these were made right, “uploaded” trials were carried out with students of English from industrial engineering and aeronautical engineering at the University of León, with a result that was 100 per cent positive.

For the design of manuals, finally, the appropriate user, teacher and programmer documentation was prepared.

3. Description of the developed software

As mentioned previously the development of a dynamic Website with access to databases was decided upon. We now commence with an explanation of what this internet technology consists of and a description of how it differs from a static Website.

In the development of a static Website the steps are as follows: i) The language teacher prepares the linguistic material, ii) the programmers then transform the pages of material into HTML (Figure 6-1).

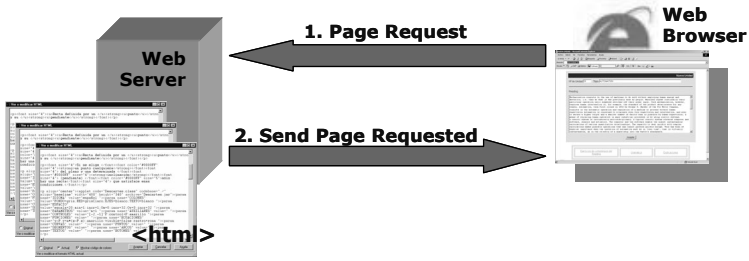


Fig. 6-1: Transforming material into HTML

All the material the students can access need be in HTML, but the accomplishment of this task was relatively fast and simple and the outcome was positive.

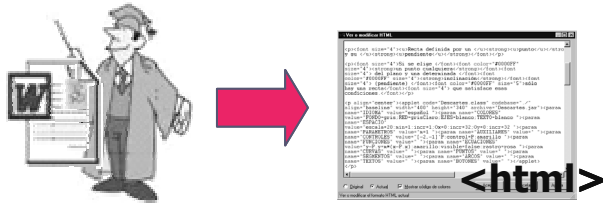


Fig. 6-2: Material encoding and interpreting

The HTML pages are stored on the Web server; when a student requests a unit or exercise from the Web browser, the Web server interprets the HTML language and displays the result (Figure 6-2).

The major inconvenience in this technique is that once the project has ended, any modifications the teacher might wish to make would require knowledge of Web programming and/or time to make and remake Web pages, in other words, more often than not a computer programmer would have to be called upon.

In order to describe in detail the development of a dynamic Website with access to databases, first let us examine how the technology in question works. The most important concept to keep in mind is that the relevant data, i.e., the information that is to be shown to the user, is not transformed directly into HTML pages but, instead, is stored on a database (Figure 6-3).

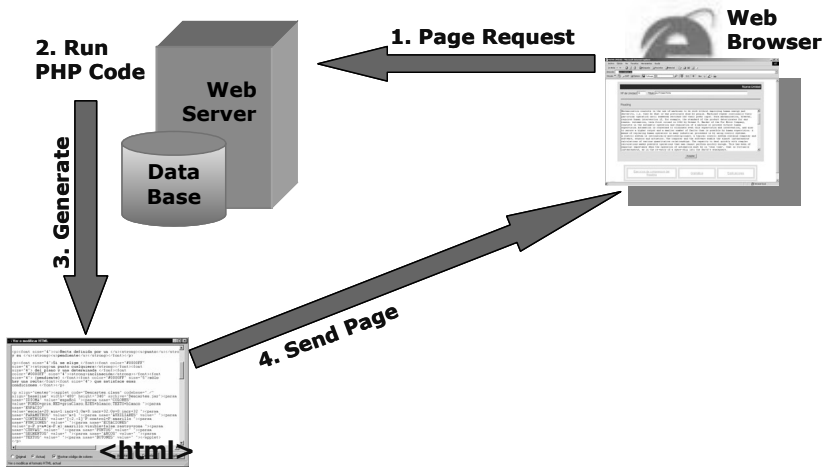


Fig. 6-3: User's access and display of information

Dynamic Web pages are developed to display the sources, in our case using JSP, described as forms of templates that are activated on the Web server upon receiving the request for information from the teacher or student. These sources can extract the information from the database and use it to generate an HTML Web page.

To visualise a unit of the course, the computer engineer has developed "a template" in JSP that, by drawing on data in the database, automatically generates a page in HTML which illustrates in a concrete view the

different parts (texts, exercises, explanations) that comprise the unit; as the data is retrieved from the database, should the student request unit 1, this same unit will appear, and so forth. If this had been developed by using static HTML, the corresponding HTML page would have to have been programmed for each and every unit, so, whenever the teacher introduced a new unit or modified an existing one, the code would have to be written or rewritten for it to be displayed.

The input of data on the databases is carried out by using the same procedure; templates (for texts, exercises, explanations, etc.) that record the data on the databases have been designed so that all the teacher has to do is add material from a Web browser.

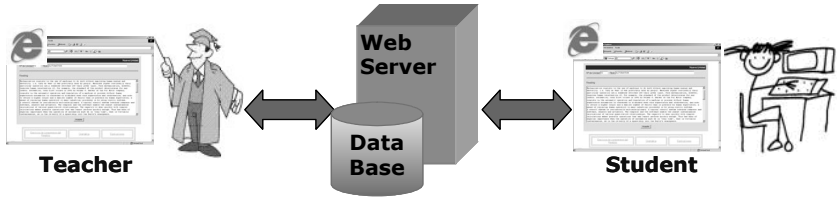


Fig. 6-4: Generated web pages from stored data

Any adjustment made by the teacher to the material is stored on the database and is, therefore, immediately available to all the students, as the Web pages are generated automatically from the data in the databases (Figure 6-4).

The application program developed can be divided into two parts, one for the teacher, administrator of the system, and the other for the services available to the students. The platform has three distinct parts: i) The on-line course in English applied to electrical, mechanical and aeronautical engineering; ii) automatic course feedback; and, iii) the communication environment, student-student and student-teacher.

4. Teacher-platform interaction

The English language teacher interacts with the platform in a user-friendly environment, as the rest of the application is accessible via the Web browser, while it requires no Web programming knowledge. From wherever and at any time, the teacher can simply add, modify, or eliminate course content (texts, explanations, exercises etc.) or parts of the environment (interesting links, news, forums, Chat), and the changes are immediately available to the students. Thus, the development and

implementation of new content are not subject to time restrictions or to the availability of computer programmers. The administration system, which students do not have access to, requires a teacher account.

Different JSP templates have been designed with a variety of fields so that the English language teacher can add, modify, or eliminate linguistic material. Figure 6-5 shows the different fields that permit additions or modifications to a unit; there are fields for inserting the number of the unit, title, text, exercises, etc.

The teacher should first indicate the type of action required by selecting one of the fields corresponding to "change", "delete" or "enter". When change or delete are opted for, the teacher should select the corresponding field. If, for example, the title of the unit is to be changed, all that needs to be done is to select or click on the upper section named "title" and write in the new title. Absolutely everything can be modified, e.g., the number of the unit to the texts, the exercises, the exercise heading, the order of the content, the answers, the explanations for the exercises, etc.

Fig. 6-5: Different fields permitting actions to a given unit

Seven different JSP templates have been designed for carrying out the exercises, providing access to an unlimited number of possibilities for the presentation of exercises. Below illustrations are provided of the seven

templates; we will mention some possible options available for each case in question.

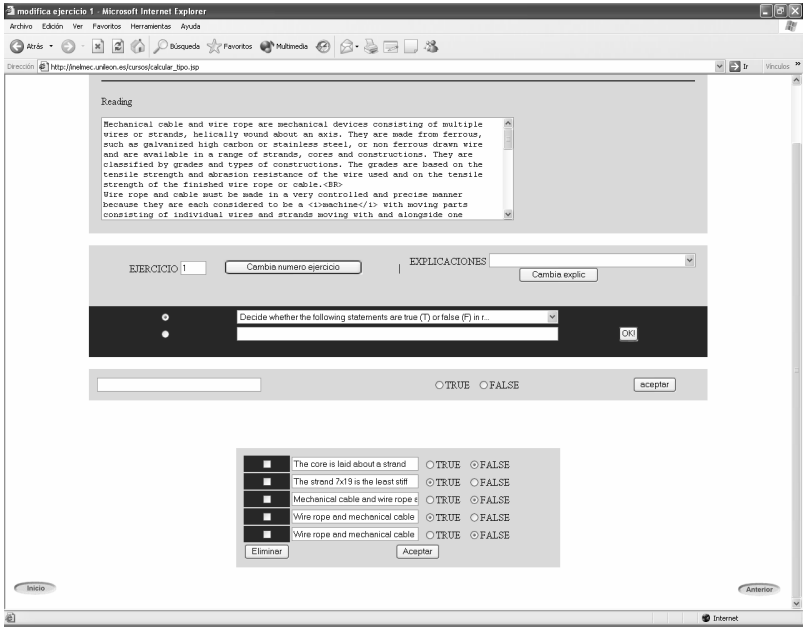


Fig. 6-6: Template 1 for exercises (true / false concepts)

Template 1 (Figure 6-6) is for the design of true/false exercises. The order of the answers can vary in each exercise. By way of example, Figure 6-6 gives the possibility to change the heading of the exercise and to select the theoretical explanation that accompanies the exercise.

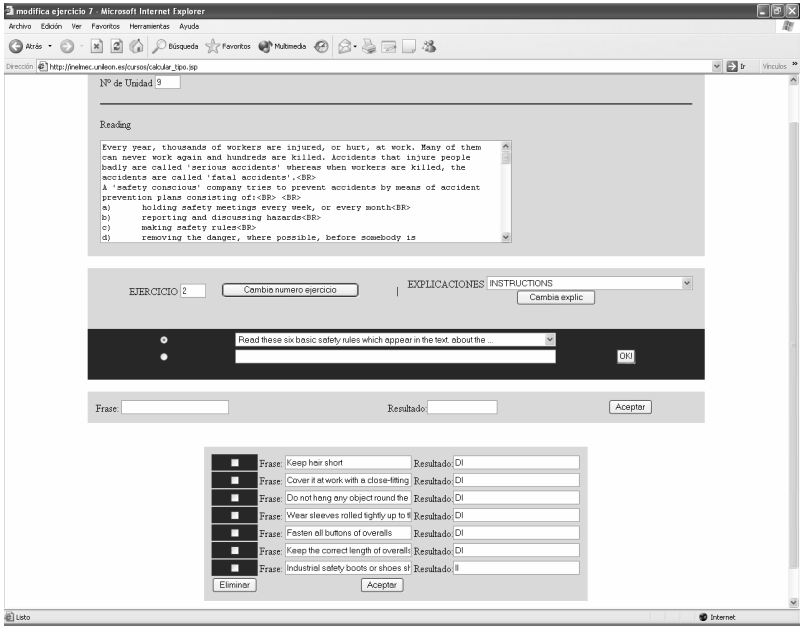


Fig. 6-7: Template 2 for exercises (options)

Template 2 (Figure 6-7) enables a choice between two options, which can change in each exercise of this type that the teacher makes. It could be used, for example, for classifying or for writing quantities.

Template 3 (Figure 6-8) is for word formation exercises. From a base word another word needs to be formed to fit a given phrase, e.g., this might involve using prefixes, suffixes or compounds.

Template 4 (Figure 6-9) is for multiple choice exercises. Depending on the degree of difficulty one wishes for the exercise, either three or four options can be chosen, and for each question the options can be changed.

Template 5 (Figure 6-10) is for linking columns. The difficulty in this exercise is related to the number of columns, e.g., any number we may wish to match and the number of rows that need to be linked. As can be observed, there are nine rows and two columns, with one free field, to be filled if the exercise is to be made more difficult. Exercises involving, for example, definitions, descriptions, and functions of cause and effect, can be constructed here.

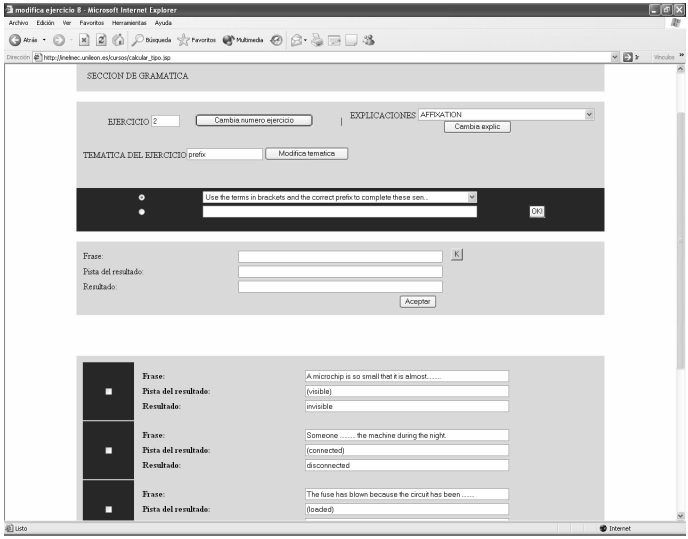


Fig. 6-8: Template 3 for exercises (word formation)

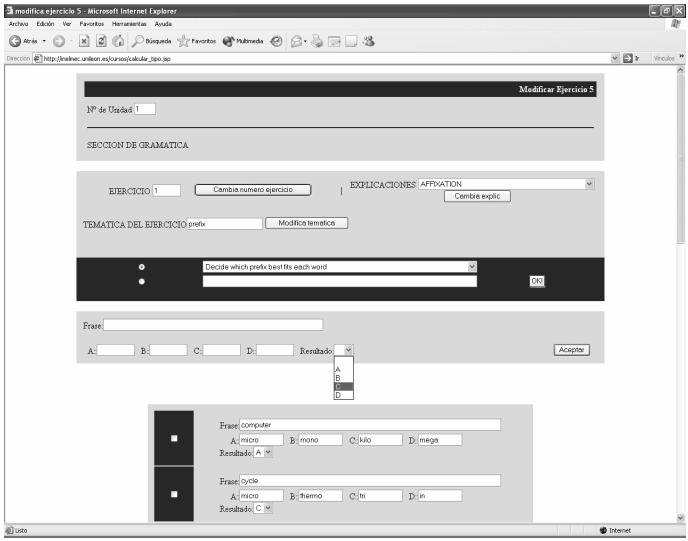


Fig. 6-9: Template 4 for exercises (multiple choice)

Template 6 (Figure 6-11) was designed for the change of verbal forms into non-verbal forms so that information comprehension from a given text may be checked. A typical exercise involves graphic labelling. This template can also be used for exercises that involve writing digits and equations.

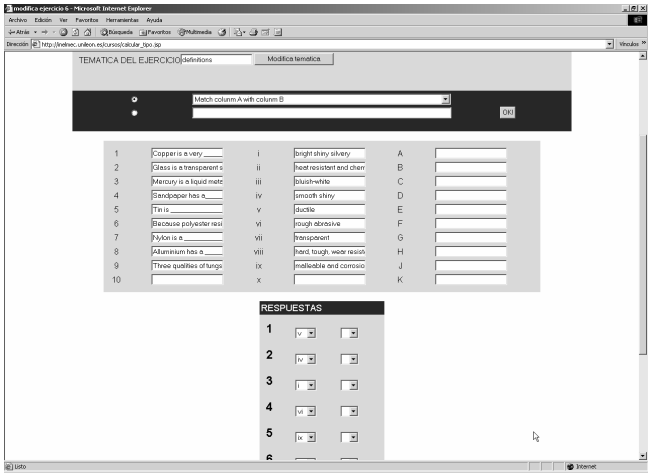


Fig. 6-10: Template 5 for exercises (linking columns)

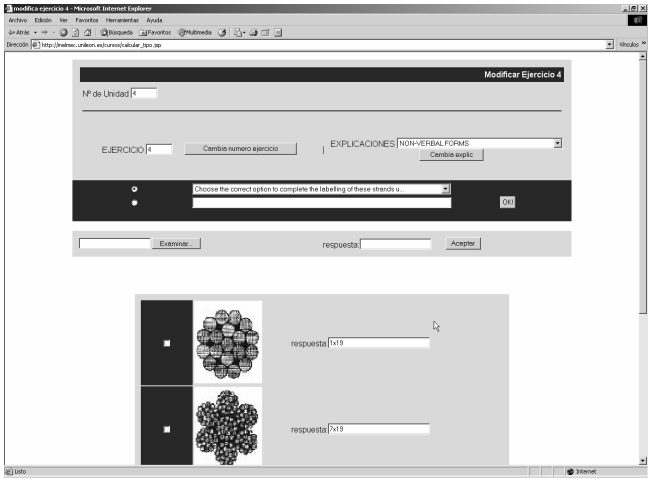


Fig. 6-11: Template 6 for exercises (information transfer)

Template 7 (Figure 6-12) is intended for the search of information in a text. With this template, exercises related to contextual reference, e.g., synonyms and antonyms, can be prepared.

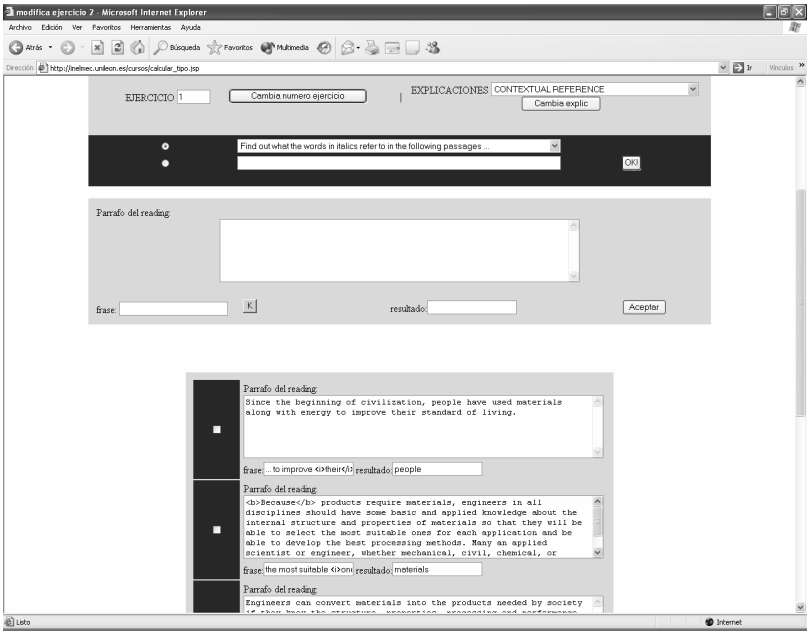


Fig. 6-12: Template 7 for exercises (information search)

Apart from the templates for exercises and practice, an additional one (Figure 6-13) has been designed for adding or modifying explanations, which are organised in hierarchical form and made up of texts and images.

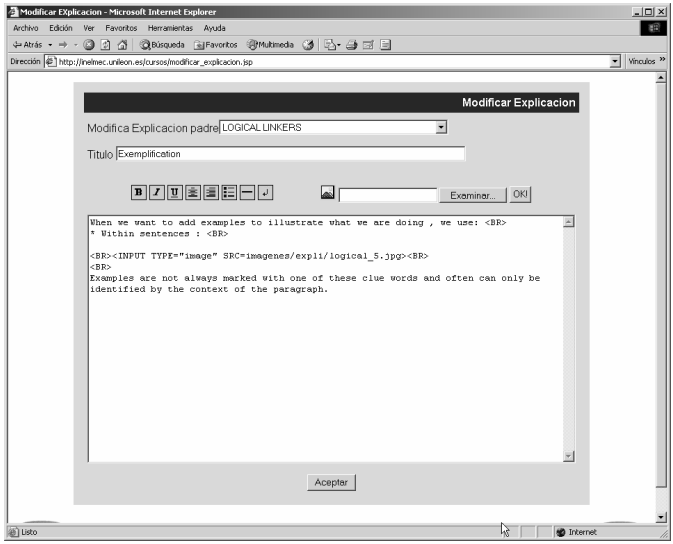


Fig. 6-13: Additional template for exercises (extra editing)

In Figure 6-13, the teacher can edit the text (using bold, italics, etc.), and insert images (e.g., to illustrate explanations or for special characters such as formulae or graphics) that cannot be managed via the editor.

Fig. 6-14: Menu in administration section

In the administration section, Web pages are also available; here, the system administrator's data, in this case the teacher's, can be added or modified, and the communication environment can be modified to accommodate required functions, e.g., interesting links, kiosk, news, FAQs.

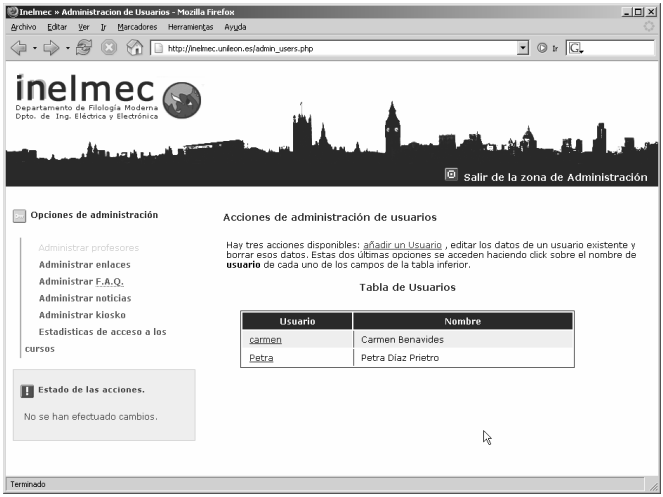


Fig. 6-15: Option to modify items from menu

The menu in the communication environment of the administration section can be seen in Figure 6-14, where all that is required is the selection of the section to be modified. Thus, for example, if we select the title "Administrar Profesores" we will see who the existing administrators are and the available functions.

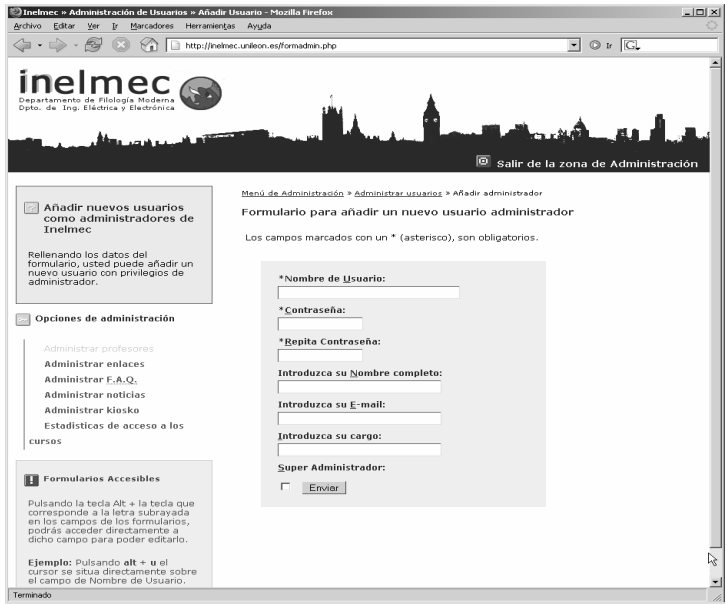
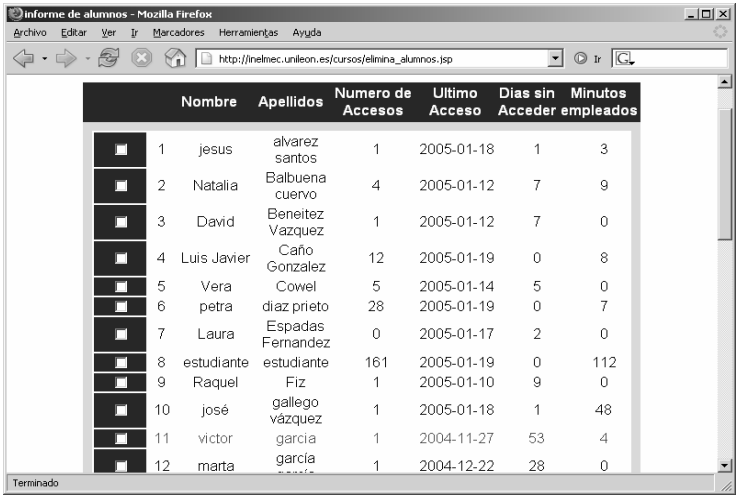


Fig. 6-16: Sending new information to the server



	Nombre	Apellidos	Numero de Accesos	Ultimo Acceso	Dias sin Acceder	Minutos empleados
1	jesus	alvarez santos	1	2005-01-18	1	3
2	Natalia	Balbuena cuervo	4	2005-01-12	7	9
3	David	Beneitez Vazquez	1	2005-01-12	7	0
4	Luis Javier	Caño Gonzalez	12	2005-01-19	0	8
5	Vera	Cowel	5	2005-01-14	5	0
6	petra	diaz prieto	28	2005-01-19	0	7
7	Laura	Espadas Fernandez	0	2005-01-17	2	0
8	estudiante	estudiante	161	2005-01-19	0	112
9	Raquel	Fiz	1	2005-01-10	9	0
10	josé	gallego vázquez	1	2005-01-18	1	48
11	victor	garcia	1	2004-11-27	53	4
12	marta	garcía	1	2004-12-22	28	0

Fig. 6-17: Tracking students' performances

If we wish to add new administrators to the system, we select "Añadir un usuario" and a form for completion appears instantly (Figure 6-15).

Once the form has been completed (Figure 6-16), and the "send button" pressed, the new teacher's data is sent to the Server and stored on the database.

In addition, from this section a tracking record can be kept (Figure 6-17) of the number of students doing the course, the number of times they access the course, the length of the sessions, and when they last accessed the course.

All the actions the teacher carries out in the administrator's system are automatically reflected in the part of INELMEC that corresponds to the students.

5. On-line course structure

The first thing anyone who accesses INELMEC finds is the Homepage (Figure 6-18) where information on INELMEC is provided along with access to the rest of the sections that the student can visit.

As we have already pointed out, the core of the services offered is the on-line English course for specific purposes, where engineering students and professionals can develop, practise and improve their knowledge of the English language in appropriate contexts.

Fig. 6-18: Homepage

All the linguistic material included has been specifically designed for this course. The activities that have been developed, all based on the texts which represent the heart of each didactic unit, aim to provide students and engineering professionals not only with techniques for reading and comprehending technical texts but also for consolidating and improving the lexical repertoire; besides, practice is emphasised in using those morpho-syntactic structures that are typical of such technical texts and of written expressions.

The course provides:

a) reading texts in English from fields of engineering (e.g., topics like valves, automotion, engine transformers, etc.) and exercises to assess reading comprehension;

b) exercises for practising the rhetorical functions used in technical language (describing, defining, classifying and giving instructions) and the sub-functions (including examples, consequences, results, hypotheses, etc.);

c) practice exercises in typical aspects of engineering such as numbers, equations, shapes, measurements, etc.;

d) practice exercises in morpho-syntactic structures requiring rhetorical functions and sub-functions;

e) specific vocabulary;

f) all the information required on how to use the language and the necessary morpho-syntactic structures, including accompanying explanations to cope with any questions the student(s) might have.

The distinct parts of the course are hyperlinked, which adds to the flexibility of the course; anything one wishes to practise is just one click of the mouse away (i.e., reading a technical text; reading comprehension exercises; language use exercises and their explanations).

Registration is required the first time the student wishes to access the course (Figure 6-19). This means that a record of those accessing can be kept (i.e., the number of times they access, the amount of time they spend on any one session, etc).

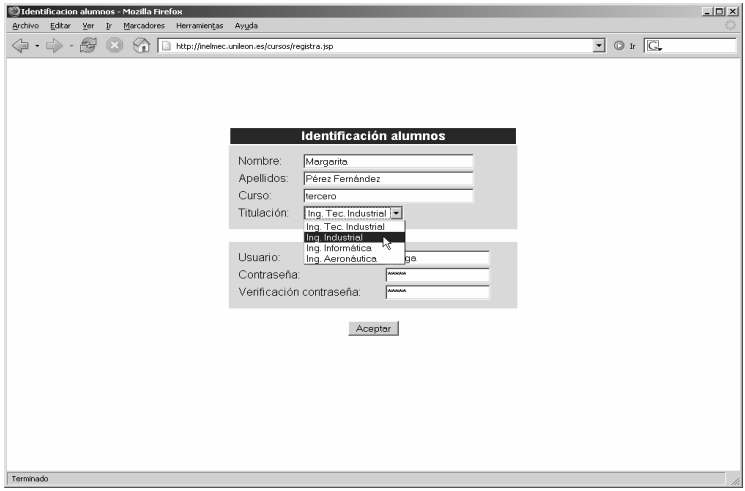


Fig. 6-19: Registration for courses

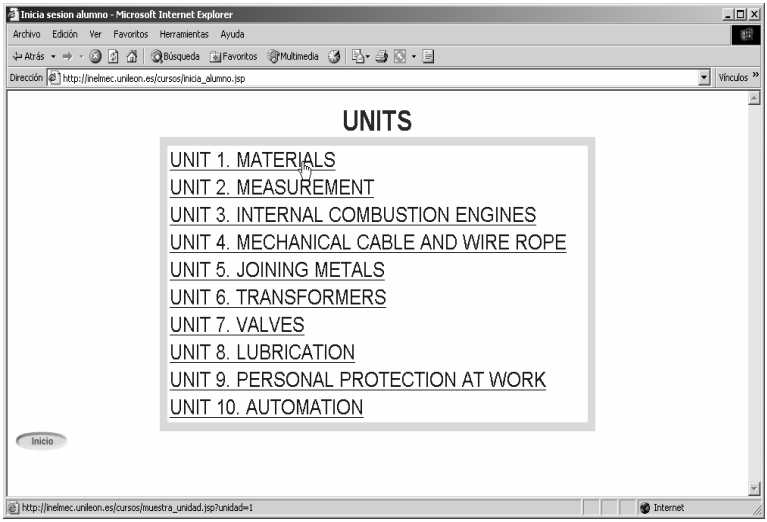


Fig. 6-20: Arrangement of units within system

The material has been divided into ten logical units, each of which comprises: a) Reading texts and reading comprehension exercises, b) exercises in language use and morpho-syntax, and, c) theoretical

explanations. The student can select the unit for practice from the index (Figure 6-20).

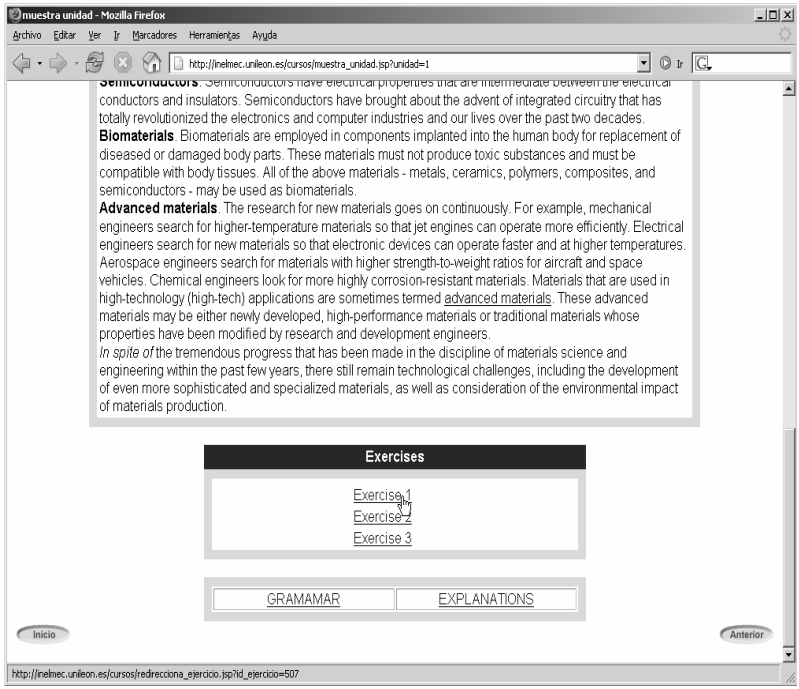


Fig. 6-21: Testing reader's skills

For reading comprehension, texts from a variety of sources (textbooks, articles from specialist journals) were chosen, which give the title to the unit in question and which have been adapted in order to illustrate some aspect of language use; there is a series of exercises that serve to check the reader's ability to obtain information contained in the texts, and to revise and expand lexical knowledge (Figure 6-21).

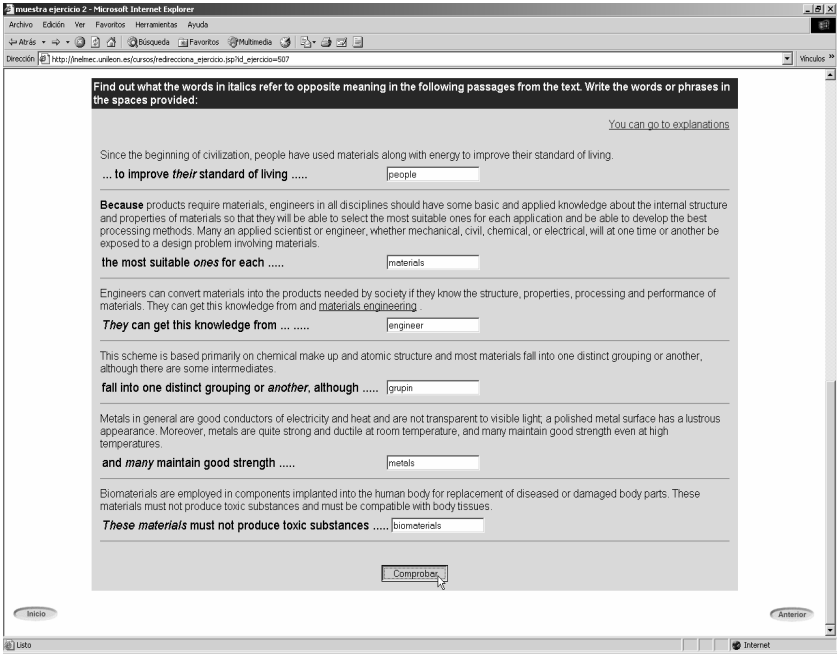


Fig. 6-22: Information completion and reading exercises

In order to help students understand the different levels of meaning present in the texts, a number of practice activities have been developed involving reading comprehension and associated sub-skills: 1, displaying an understanding of vocabulary items, 2, skimming for gist, 3, scanning for specific information, 4, reading for detail, 5, understanding relationships between sentences and clauses in the text, 6, recognising the organization of a text.

The exercises cover more than one of these sub-skills and include a variety of types: a. Exercises related to contextual reference to develop an understanding of the relationship between sentences and clauses in a text by means of logical connectors, or by means of reference devices; b. Exercises involving information transfer, i.e., using information in the text to complete tables, graphs, diagrams, and labels, or, vice versa, from tables to text (Figure 6-22), that serve to improve reading for detail; c. Exercises in reading for detail or for gist with true/false questions; d. Synonyms and antonyms to develop the understanding and development of vocabulary

items; e. Matching exercises for skimming and gist; and f. Text completion exercises.

Grammar is in this course part of the linguistic practise. What is focused upon are the morpho-syntactic structures that appear in technical discourse. The use of English in morpho-syntactic exercises should enable the student to identify the most relevant aspects of discourse to be found in texts on engineering. The exercises (Figure 6-23) range from those covering aspects (such as relative phrases, passives, comparatives, time, descriptions, definitions, equivalence, and non-equivalence; cause and effect; word formation, etc.) to those that are specifically related to engineering such as numbers, equations, shapes, measurements, and so forth.

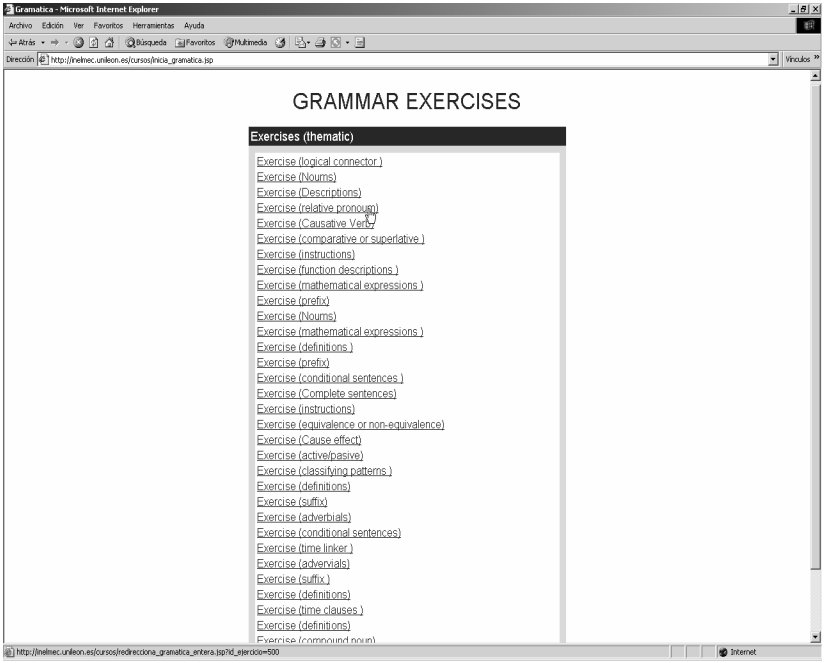


Fig. 6-23: Grammatical exercises

The types of exercises encompass multiple choices, matching columns, using correct verb tenses, using appropriate connectors for cohesion in discourse, writing numbers and equations, adding prefixes and suffixes for

adapting words to fit phrases appropriately, etc. Figures 6-22 and 6-24 provide illustrations of different exercise types.

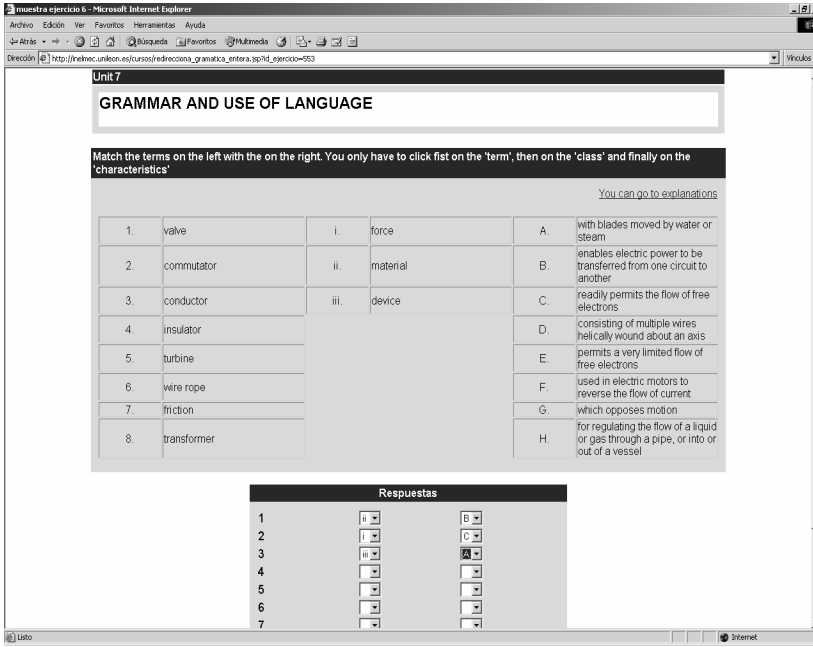


Fig. 6-24: Lexical-grammatical exercises

The theoretical explanations (Figure 6-25) are related to the exercises that appear throughout the course. The student can find out how to write equations, describe colour, size and shape; to place adverbs, express cause and effect, define, and describe the function of a device, among other functions, by following detailed explanations.

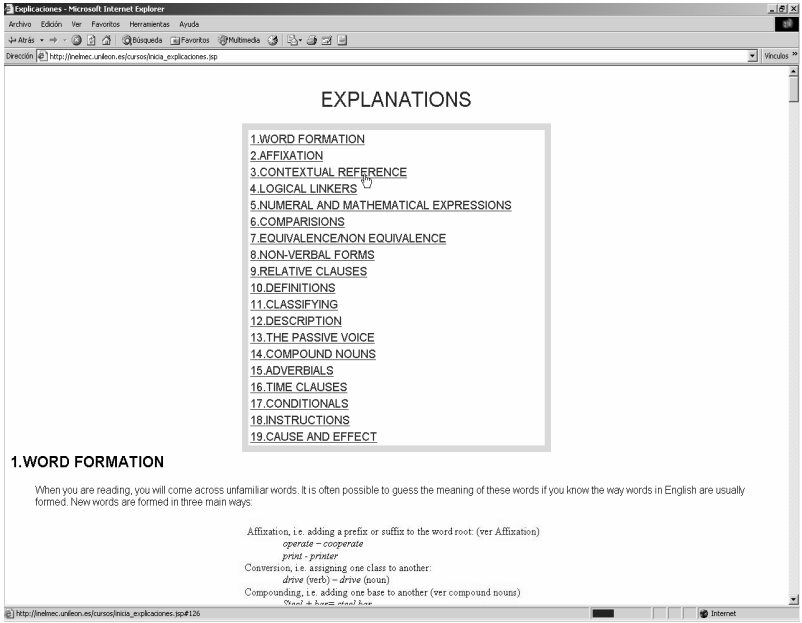


Fig. 6-25: Theoretical explanations

Although the linguistic material falls into unit divisions, each part (reading comprehension, morpho-syntactic exercises and explanations) can function independently, and each part is always hyperlinked, allowing easy movement from one section to another. It is important to highlight the fact that as illustrated in Figure 6-24, every exercise contains hyperlinks that provide direct, automatic access to the related theoretical explanations. The teacher does not have to go about the tedious job of adding these links one by one, since the relationship between units, exercises and explanations are already stored on the databases and are automatically generated from the JSP templates by the application. This is one of the possibilities not provided by the CMSs.

6. Instant feedback

Feedback on the exercises the student is working on is another feature INELMEC offers. The student has two opportunities to complete the corresponding exercise, and can, at all times, check if the answers are correct.

The process for carrying out and correcting an exercise is as follows: The student chooses an exercise, completes it either wholly or partially, and, as soon as the "check" button is selected, he /she receives the result, correct or incorrect, for each item. However, the first time the student clicks on the check button, the correct solution is not provided, and so the student has a second opportunity to answer those items marked as incorrect (Figure 6-26). Once the check button is selected a second time, along with marking answers as correct or incorrect, the correct answer is shown and the percentage of correct answers obtained therein appears.

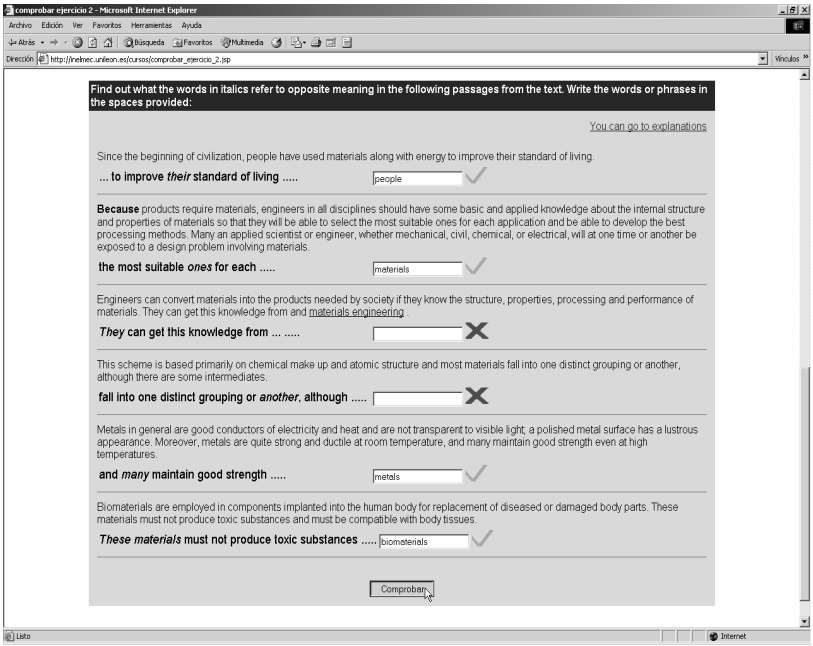


Fig. 6-26: Possibility to answer (again) incorrect items

The results obtained in the different exercises of a given unit (Figure 6-27) provide the student with the means to be able to judge whether the unit needs to be redone or not, whether theoretical content needs revising, or whether it is time to move on to another unit. The student is given a more active role in the learning process which coincides with the educational philosophy of the new European Higher Education Area (EHEA), i.e., our own research framework objective.

In addition, the percentages obtained by the student for each exercise or unit are kept on the database so that the teacher can keep a track of the student's progress; the teacher can also identify which concepts need to be emphasised in class, or if needed, even develop more exercises on a subject so that the student can do further work online on the topic. Thus the combination of automatic assessment and tracking helps keep a check on the teaching-learning process.

All the pages are generated automatically from the information on the database.

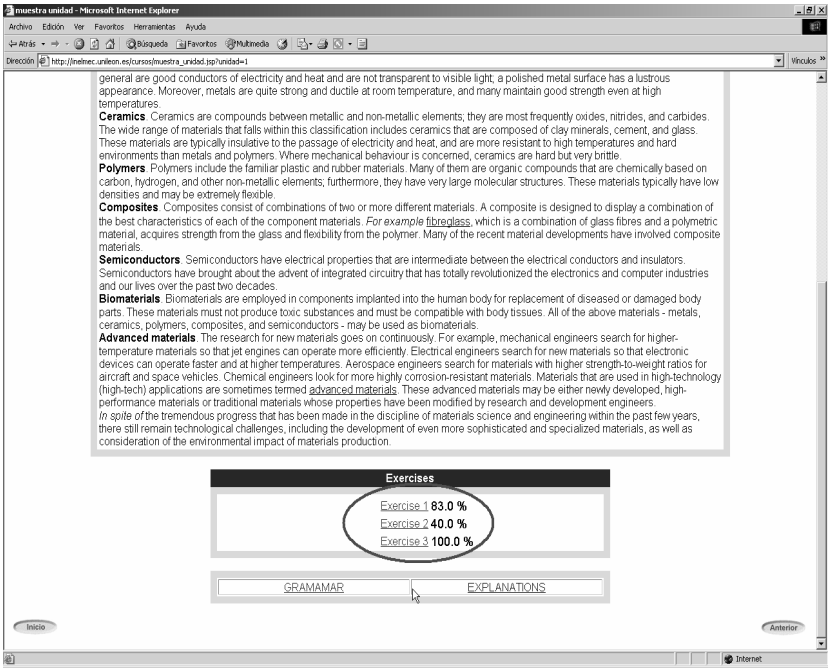


Fig. 6-27: Results obtained in a given unit

7. Collaborative learning: The teacher-student or student-student communication environment

As a complement to face-to-face teaching, along with the theory and the exercises available in the online course, a series of additional services have been made available: i) Interaction improvement (both teacher-

student and student-student) as an active environment for the exchange of queries and suggestions with very speedy replying (Sperling 1998); ii) a bank of knowledge that the student can use throughout the learning process. The teacher-student interaction also serves as an aid in the creation of the FAQ (Frequently asked questions).

The communication is asynchronous, i.e., it is not necessary for the teacher and students to be online at the same time, as the information is available on the platform, except in the case of Chat, where it is synchronous. A detailed description of the different sections of INELMEC is classified as follows.

Chat section.- Communication can take place online via chat, in real time, in a fast and cost-effective way, thus opening the class to the outside world in a way that, until now, has never been possible. By means of this tool the teacher can hold online tutorials at a prearranged time to answer questions, make suggestions, etc.

Even when the teacher is not logged on, the students can use this tool to share knowledge or carry out group activities. Bearing in mind that this platform serves as a group forum, the students have access to a number of different discussion topics (Figure 6-28). It is important to keep a consistent policy by establishing as a general rule the use of English for communication when using the platform. This will promote written expression and reading comprehension, whereas, at the same time, queries by students may be resolved and ideas exchanged.

Discussion forums can be used to enhance interaction among students and between the student and the teacher, though not necessarily via synchronous interactions, as mentioned. Once a discussion forum has been chosen, all the student needs to do is click on it to enter and express any opinions and queries, which are then available to the rest of the course participants. The fact that the communication is asynchronous means that it is more accommodating, as questions can be put forward without having to wait until such time as the teacher is available, and, likewise, the teacher does not have to answer questions posed at a fixed time.

The forum is another useful tool where the teacher can identify those questions that tend to be asked in each course, thereby incorporating them into the FAQ so that they are accessible on a continuous basis and need not be answered year after year.

Both the Chat and the forum are tools that help the student—especially the shy ones—to make suggestions or ask questions (as they might not have done so in a traditional face-to-face setting).

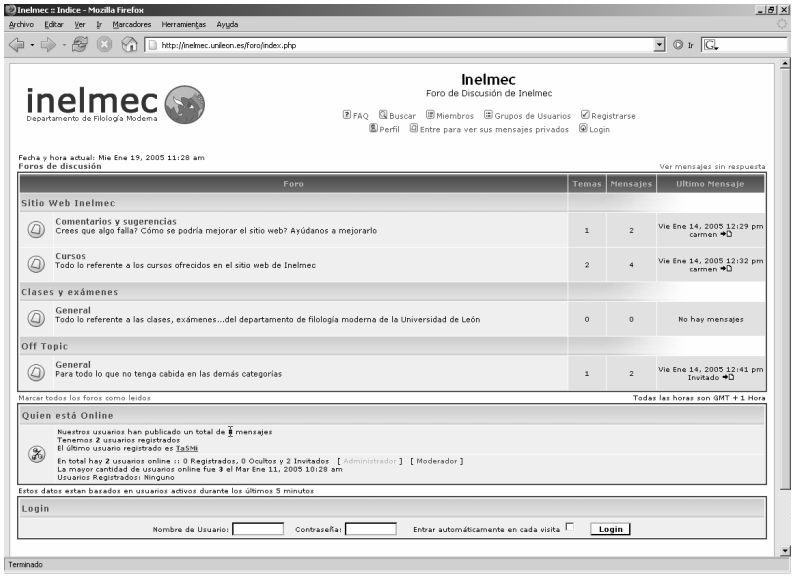


Fig. 6-28: Discussion via forums on the platform

Links sections to interesting Websites (dictionaries; terminology; encyclopaedias; general English course) can be quite useful for engineering students studying English; these links are selected by the teacher and provide the student with additional learning material.

A "Kiosk" section with links to on-line publications on Engineering aims to motivate the student to read specific texts that will help them improve their reading comprehension and for acquisition of certain notions on different subjects.

In addition to the sections already shown there is also: A News section providing information on upcoming events (news related to content, activities, etc.), and finally a FAQs (Frequently Asked Questions) section where any frequent consultations made by students to the teacher are stored; this way, new students may look up questions and answers, making teachers' repetitions of the same questions unnecessary. It is of primary importance that these services are available via internet; students can use them from any place and at any time they may prefer or choose.

8. Results

Language students and teachers are, we believe, the best judges of INELMEC, which has been used by more than 300 students on a voluntary basis during the last two academic years, with an average access of 20 times per person and a little over 30 minutes per session. One noteworthy detail is that whenever, for reasons beyond our control (e.g., in the case of an electricity supply failure) the Web server turns off and therefore stops functioning, it is the students themselves who, via e-mail and in class, ask us to restart the program.

In order to obtain more detailed information regarding the opinions of students about the use of INELMEC as a complement in their training to the face-to-face classes, a survey has been carried out on a voluntary and anonymous basis; it involved 60 undergraduate students of computer engineering and industrial engineering.

As Figure 6-29 shows, the students' assessment of INELMEC as a complementary learning tool is very positive. According to 80 per cent of those surveyed, the platform is good or excellent, and none rated it as poor.

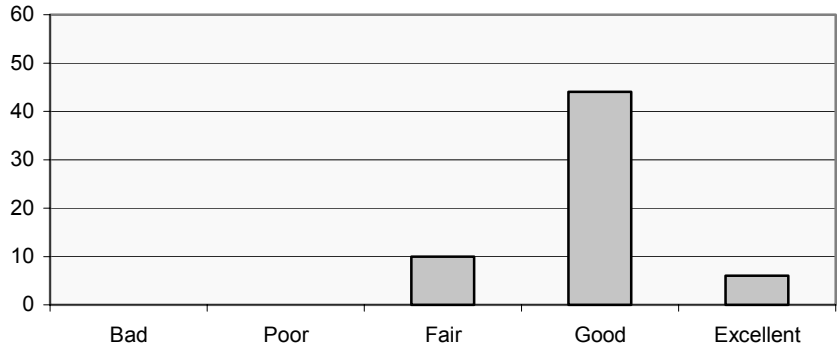


Fig. 6-29: Students' assessment of platform

As far as content is concerned, the students' opinions were also, as illustrated in Figure 6-30, quite positive.

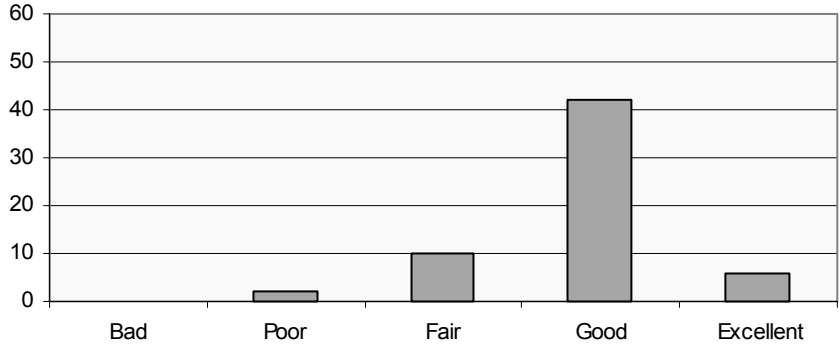


Fig. 6-30: Students' assessment of content

The students' opinions about the feedback that comes with the exercises are synthesised in Figure 6-31.

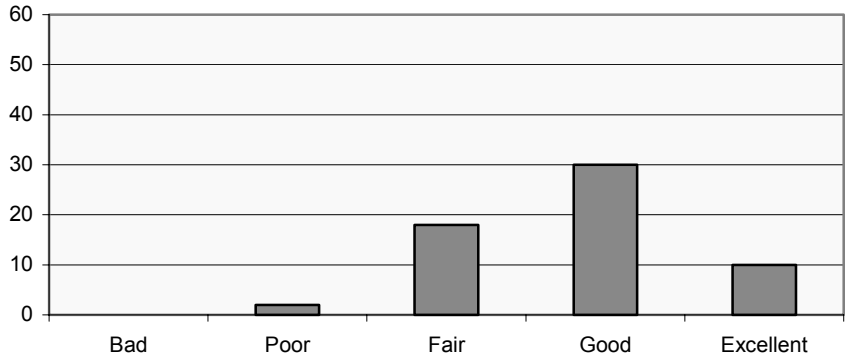


Fig. 6-31: Students' impressions on exercise feedback in the system

A different type of evaluation can be checked concerning the usability of the system (Figure 6-32) as well as the application's interface, as rated by the users (Figure 6-33).

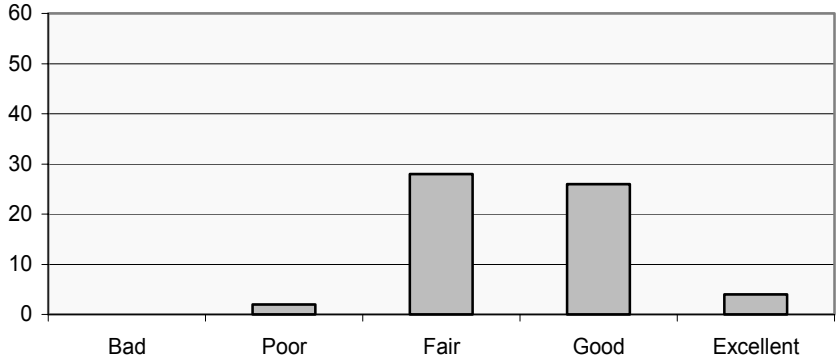


Fig. 6-32: Evaluation of usability

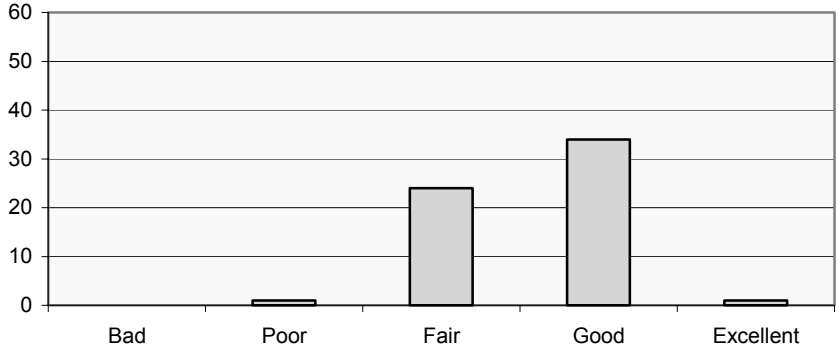


Fig. 6-33: Evaluation of interface

Figure 6-34 illustrates the average score ranging from 0 (bad) to 10 (excellent) in relation to the different services offered within the platform. The online course obtained the highest score and is in fact the part that is accessed most. The assessment of the chat and forums, while positive, is nevertheless the lowest and therefore suggests that these interactive means are tools the teacher needs to highlight more, perhaps by programming chat sessions on concrete topics, or formulating questions for the forum that might motivate more student participation.

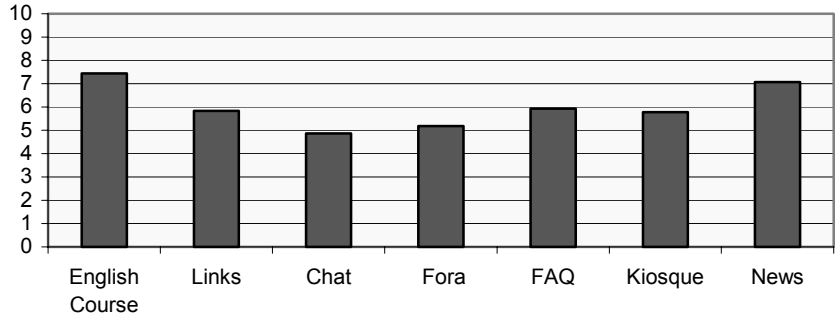


Fig. 6-34: Students' rating of different items in the system

The English language teachers involved in this project consider that the initial objectives have been met, commending the user-friendliness of the environment and how easy it is to use; the environment enables and encourages the continuous development of new materials (comprehension texts, grammar, lexical exercises) to be added to the platform and made available to students.

To conclude this section of results, the findings may be divided into two parts. First, those related to the services offered to the student:

a) a specialised online course for the practice of reading comprehension and of morpho-syntax and language use in fields of engineering;

b) immediate and automatic correction of the exercises the student is carrying out;

c) information organised in such a way that the student can move with ease from one text to another or from the morpho-syntactic exercises to the corresponding explanations when searching for information based on a word or concept;

d) INELMEC can be used to practise aspects that proved to be difficult in class, using exercises carried out at the student's own pace (promotion of learner autonomy), independent of teachers and peers;

e) the student has open access to the course any time (24 hours a day, 7 days a week) and even more importantly, from any place (faculty, home, summer residence, etc); all that is required is a PC with access to internet and a Web browser;

f) a meeting point between the class and real world offering the possibility to have recourse to dictionaries and specialist publications;

g) an environment for interaction with fellow students and teachers.

Second, the results of the services offered to the teacher can be summarised as follows:

a) A user-friendly environment where the teacher, without any programming knowledge, can add, modify or eliminate both course and environment content. Furthermore, the development and implementation of new content, in line with the defined format, was designed so that it is not tied to the duration of this research project.

b) Updates can be carried out from anywhere; all that is required is access to internet and a Web browser.

c) The teacher has access to relevant information for keeping a check on the student's learning process, e.g., the number of times a student has accessed the course, the results obtained in the exercise(s), etc.

d) The chat and forums encourage interaction, which in turn provides feedback between student and teacher and therefore represents a useful tool for the teacher to keep track of the student.

e) Furthermore, this project has wide possibilities for use, for example, in courses in English for any other specific purposes (economics, law, education, other engineering fields, etc.) and/or for any other language (French, German, etc.).

9. Conclusions

The results of this work have provided engineering students with access to additional learning material (appropriate to their professional field and their level of knowledge) for the practice of English within an e-learning environment that permits interaction among students and teachers, autonomous in so far as time and space are concerned. Many of the obstacles to the use of new information technologies in the language teaching/learning process have been overcome.

An important path of language teaching and learning is integrated by text, image and sound. Within the second part of this project already underway, our next goal is to integrate image and sound in INELMEC so as to convert it into a multimedia course that will provide for the practice of all four language skills.

Our experience so far indicates that the use of platforms like INELMEC certainly offers a viable solution as a complement to class-work and one which university teaching should incorporate in order to adapt to the new educational models in the EHEA. According to these new models, traditional lectures are relegated to a secondary position while both learner training and teacher-tutors take on more importance. As INELMEC has proved in our context, the use of platforms such as this is

enormously useful for both the teacher and student in the implementation of new work practices.

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CHAPTER SEVEN

A UNIVERSITY E-LEARNING PLATFORM FOR SPECIALISED FOREIGN LANGUAGE TEACHING AND COMMUNICATION

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1. Introduction: eLearning systems and the European policy

The need for increased development rate, productivity, employment and social cohesion in the European Union has led, in recent years, to the design of a framework that may allow the European Commission to accomplish these aims. The eEurope Action Plan dated May 2000, with the goal of establishing the European Union as the most competitive economy by the year 2010 (COM 2002), focuses on the widespread availability and use of broadband networks throughout the Union and on the development of Internet Protocol IPv6, aiming at the provision of a dynamic business environment, a secure information infrastructure, and a wide range of modern online public services, such as eGovernment, eHealth, eBusinness and eLearning (seen in Barcelona European Council). It is this last action or series, in particular, that the Commission is attempting to promote in various ways, including through the extensive use of ICT programs and the eLearning initiative.

The eLearning initiative proposes actions alongside the following discernible axes:

-The development of a high quality technological infrastructure—i.e., the connection of schools to high speed networks (of academic / research centres), improvement of the student-PC ratio[1], incorporation of technological methods based on ICT in school curricula, online learning platforms, and support systems, so that eLearning can be made accessible to all—.

-The promotion of training at all levels, with particular emphasis on the technological training of educators, and the most effective use of technology for educational purposes.

- The design of services, content and new digital educational environments (research into NLE, the development of innovative applications for education and training, virtual communities and campuses, as well as virtual networks for cooperation and collaboration).

- The development of a culture of lifelong learning.

For the application of the eLearning Initiative, the Commission proceeded towards the formulation of an eLearning Action Plan, which clarifies the relationship of eLearning and eEurope, and defines concerted key measures for each of its four actions, that is, the infrastructure, training, provision of high-quality multimedia services and content as well as dialogue and cooperation at all levels (COM 2001, 8-9). In the same direction, specific recommendations were made during the European eLearning Summit (2001) in order to accelerate the necessary pedagogical and institutional changes.

Although it is obviously beyond the scope of this study to cite all the documentation related to this important area, let us emphasise the recommendations urged, ensuring connectivity and accessibility of eLearning to every user, the involvement of the private sector and its cooperation with the public sector, an increase in investment for the development of open standards for eLearning and its interoperability, the appropriate training of educators, and especially towards research into eLearning pedagogy, eContent and the development of user-friendly interfaces (ICC 2003, 68-69).

The formulation of the European policy, as described above, suggested initiatives that have applications to all learning objects**,** while there are certain sectors of strategic importance indicated in all official documents without the development of which the accomplishment of the aims of the eEurope Action Plan will not be possible. These sectors are an increase in Modern Language learning, and the development of Digital Literacy, and even in the workforce, most significantly, for the training of educators, who play a key role in the successful planning, application and functioning of any eLearning system.

2. Why implement an eLearning system in a foreign language department?

Taking such introductory statements as a basic background scope, it seems obvious that the development of eLearning systems for language learning and, if feasible, the simultaneous acquisition of digital literacy is important and in tune with social needs. Furthermore, the development of similar systems should be a

basic priority for those university departments that wish to produce future foreign language teachers.

Several internet applications have been developed in recent years by various European institutions (Thematic Network Project II) within this framework. Some characteristic examples of good practice are as follows:

- "Digitalenklas" (Jager 2002) is a project developed by four Dutch universities (Utrecht, Leiden, Groningen, Tilburg) for the inclusion of ICT in the teaching of foreign languages. The project concerns the development of listening and speaking skills in four languages—English, Spanish, Dutch and Arabic—. It makes use of the customised software "Ellips", which is based mainly on closed-type exercises for the web and was developed in cooperation with the Languages Centre of the University of Ghent in Belgium (cf. EuroCALL 2003).
- The University Language Scheme project from the University of Sheffield Hallam, U.K., was designed to function as a complement to the existing program of language instruction in the classroom (Scott, Lyne and Pink 2002). It uses multimedia teaching materials and closed-type exercises to develop students' listening and reading skills in four languages (French, German, Spanish and Italian).
- The "VDML" (Virtual Departments for Minority Languages) project was developed by the Departments of Scandinavian studies of three British universities under the auspices of JISC. The aim of the program was the development of a virtual foreign language university department for the support of students and teachers (Hughes and King 2002). It uses WebCT and Hot Potatoes software for the production of exercises on the web in order to teach Danish.
- "Approaches to Literature" and "Assessment and the Expanded Text" are projects headed by the Northumbria University, UK, and in which three other British universities participate. They concern the teaching of English literature and the evaluation of students online (Holland and Arrowsmith 2000).
- The "INGENIO" project was designed by Valencia Polytechnic university (Spain) as an online environment for language courses. At the same time, it is a database made up of multimedia language exercises.
- The "Welcome/I4LL" project and the "Kielikompassi" portal (at the Virtual Finnish University) are applications that offer access to sources or to databases of teaching materials, online language activities, cultural information, and others. These materials are usually part of a series of lessons, and parts of them may also be offered.
- Finally, in our own department, The JOBLINE and XENIOS projects (Aristotle University of Thessaloniki, Greece) are applications aiming at the development of special language skills, since they are addressed to particular

target groups (e.g., employment search in a foreign country, economic idiolects, and so forth).

In these applications, we can observe a swing from teaching to acquisition and from the traditional teacher-centred approach to a learner-centred educational model in which, with the use of information and communication technologies, foreign language students can become autonomous (Benson and Voller 1997, 25), use alternative sources, and determine the time, place, amount of content, and the pace and direction of the learning processes.

The present research relies on the design of a distance learning program of courses included in the graduate studies curriculum of our Foreign Language Department, which aims at the development of new professional abilities for students, enabling them to respond to the needs of the labour market in foreign languages for specific purposes, which, due to the increase in natural and virtual mobility, continue to rise.

In parallel, the designed program aims at the development of students' language abilities and their acquisition of cultural knowledge concerning the country where the foreign language is spoken, on the one hand, and, on the other, at the acquisition of technological knowledge.

This latter parameter is particularly important since technological ability constitutes a basic characteristic of the future foreign-language-teacher profile, in agreement with the demands of the new digitally-enhanced learning environments. In this new type of contexts, the foreign language teacher is called upon to play a new role, no longer as the absolute owner of knowledge, but now as the tutor, facilitator, researcher, and integrator of new media, while, certainly, as the designer of learning materials and scenarios (Fitzpatrick et al. 2003, 42-45). Therefore, it is a fact that a basic level of technological knowledge is not sufficient, as foreign language teachers should be in a position to make the best use of technological environments in order to search, evaluate and select information and means appropriate for the aims they set, as well as to design lessons and activities with additional value for their students (Shulte 2001, 38). Consequently, it seems reasonable that future teachers should become familiar with the technological tools available, not just through learning to use them, but also by using them themselves as students during their training.[2] This work should allow them to make more effective use of new learning environments in the future, integrating them in the most effective way into more traditional teaching methodologies (Osborne 2001, 138); in addition, improvement of professional abilities to open up opportunities in the job market should be a priority at this level.

This particular distance-learning program of courses is believed to provide solutions to other problems faced by the French Language and Literature Department at Aristotle University, in the curriculum of which it is to be

included. Firstly, it will offer an alternative solution to the problem of lack of classroom space, allowing certain numbers of students to attend remotely while at the same time will provide an answer to the problem of staff shortages. Secondly, our teaching personnel will, in this way, be able to cater for a greater sub-division of classes. In addition, it will ensure that students with special needs or students who cannot attend the conventional curriculum for different reasons (work, geography, finances, and so on) can access at least part of their studies.

3. Technological options

The first step in the creation of a distance learning system is the choice of the technological platform that will host it. Of course, the choice of technologies for the delivery of the teaching materials, the support of the learning process and that of the users are subject to various criteria, such as cost, availability of technologies, number and accessibility potential of users, type of teaching materials, and others (Bates 1995, 3-12). In any case, the technological solutions that will be applied should cater for the needs of the system, as presented below in Figure 7-1.

It is obvious from the applications described in the next section that either complete technological platforms, such as Virtual Learning Environments (VLE), or combinations of technologies—commercial or custom made—are used, depending on the case, to fulfil the requirements presented in Figure 7-1.

Of course, in the case of institutions of Higher Education, the infrastructure and technological platforms that can be used are usually already available. In recent years, the tendency in European tertiary institutions is the installation of VLEs that work either independently or within the framework of the broader managed learning environments that the University possesses (UCISA 2003). Equivalent systems are currently available at the Aristotle University of Thessaloniki, especially via the use of the VLE Blackboard, one of the most complete and widely-recognised software of its kind, as well as of the Claroline platform, likewise popular as low-cost installation.

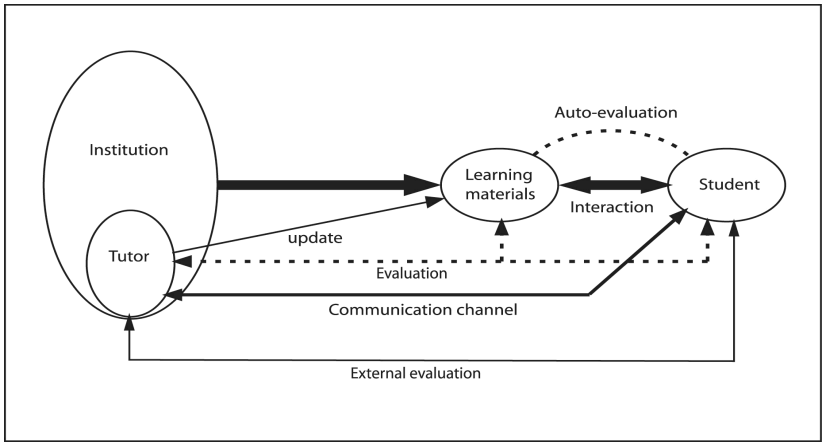

Fig. 7-1: The learning system being installed

However, a new choice was made for the establishment of a website that might develop the distance learning program of the Department subjects.

There are several reasons that have led to this choice. Firstly, administration of the VLE was impossible for us, since it is carried out centrally by the University, a fact that deprives us of the possibility to customise it according to our needs. Secondly, the design of the courses does not, at present, require many of the VLE capabilities (for example, the ability for students and teachers to communicate and collaborate online). Furthermore, administrative characteristics that VLEs are particularly useful for (studies management, support of list of participants, grades, etc.) were not of critical importance in this specific case. Therefore, the use of a VLE would seem to complicate matters, increase teachers' workload, and create more problems for the users than those it might solve.

At this point, it should be mentioned that the level of digital literacy (or computer literacy) of the staff and students of the department is generally far from sufficient for the satisfactory feeding, use, and maximization of benefits from a VLE. Therefore, in the case of the use of a VLE, additional training costs of both teachers and students from the department should be considered. This would require both financial and human resources, neither of which was available.

The development of a website, customised to the needs of the program, was believed to offer certain advantages and would help to avoid the restrictions imposed by the VLE (Panagiotidis 2005, 227-239).

In particular, this choice would enable the following:

- To make possible the incorporation of the database that supports the lessons designed under exact specifications (see section 4.2 below).
- To enable the integration of the "timeline" application, specifically adapted and developed for the courses.
- To allow for the design of a user interface that would be appropriate for the specific subjects and teaching materials (see section 4.1 below).
- To allow for easier incorporation of exercises designed with exercise production software for the web.
- To be functional and offer a working environment similar to the rest of the departmental websites, providing the same experience to each student from the department and each user of the system (see bibliography for the department's web site).
- To make use of already existing technological know-how's from similar applications developed in the department over the past years (see bibliography).
- To offer students the opportunity to be trained with tools that they will be called upon to use (e.g., Hot Potatoes).
- To offer greater freedom concerning the management of the multimedia materials and the degree of interactivity.

4. Design principles of the eLearning platform

The basic principle for the design of the distance learning system of the Department of French Language and Literature (which will be referred to as eFRL from now on) was the creation of an eLearning platform model that could host an unlimited number of courses consisting of different subjects. Each lesson is to be combined with several learning objects in this platform.

Using the definition adopted by the Learning Object Initiative (cf. Allert, Dhraief and Nejdl 2002; IEEE-LTSC), a learning object may be defined as any grouping of materials that is structured in a meaningful way and is tied to an educational objective. These "materials" can be documents, pictures, simulations, movies, sounds, and so on. Structuring these in a meaningful way implies that the materials are related and arranged in a logical order. Yet, without a clear and measurable educational objective, the collection remains simply a collection (Johnson 2003).

In our case the learning object is a unique entity with specific characteristics comprising texts, images, sounds, etc., and is saved in a specially designed multimedia database (see section 4.2).

Its structure requires the production of individual pictures, animation, sounds, music, video sequences, and any other digital media (Horton and Horton 2003, 12). Many such entities with a coherent navigational structure form a lesson, and 10 to 12 lessons form a complete course.[3]

This conceptual design led us to formulate the research according to three basic parameters:

- the development of the appropriate user interface
- the design of a database capable of supporting multimedia materials
- the design of a common structure concerning the organization of the teaching material

4.1. The user interface

Specifications were set from the beginning in the design of the user interface. These were due, on the one hand, to the variety of learning objects it would have to support and, on the other, to the level of computer literacy of future users of the system, that is, students from the Department.

Therefore, what we decided can be summarised as follows:

- The adoption of complete uniformity of graphic design on the pages of the different lessons, to ensure the users' rapid and easy familiarisation with the environment.
- The division of the screen into areas that serve different purposes. This division is maintained throughout the system structure, and is common to all courses.
- A common way to navigate the course content. This concerns not only the succession of lessons in each course, but also the evaluation and communication with the teacher.
- A common structure of the lessons of a course concerning the pedagogical aspect: Presentation of the teaching material/activity/(self)evaluation.
- The adoption of "floating" windows. While the basic content of the lesson remains accessible on the screen, the activities and the accompanying applications are offered as floating windows.

In addition, given the technological level of the students from the department and the type of access they have from their homes (primarily PSTN or ISDN), choices were made concerning technological means. Thus, it was decided that:

- only tools offered as standard by the operating system (Browser, Windows Media player, Outlook), as well as certain very commonly used free software applications, such as Adobe Reader, would be used,
- whatever auxiliary tools (see section 6) are used, they would be part of and accessible through the interface;
- the course content must be directly accessible and printable so that the students will not have to follow links on the internet in order to locate the relevant materials (McVay Lynch 2002, 93-94).
- the basic content of the pages should be light in size (kb) and the multimedia archives should be accessible on demand.

It should be noted, however, that nothing prevents the parallel use of other software tools, depending on the communication type in particular, programmed to take place during the extension phase of the system.

4.2. The database

In accordance with the user's needs and the specific requirements of the courses, a conceptual model for the multimedia database of the distance learning system has been developed. This database consists of a data security layer for the protection of the stored content, a data management layer (Elmashri and Navathe 2000, 56; Date 1995, 35-42), and a storage / retrieval system (Conolly and Begg 2005, 44).

A dynamic delivery user interface provides access to students (learners), teaching staff (instructors) and the system administrator. Instructors are provided with a user-friendly interface to store course materials. Using pre-defined templates, they can thus develop an entire course or individual modules by using existing learning objects or by creating new ones. A very important aspect was the digitalisation of the learning materials and their storage on the designed database, which acts as a main Learning Object Repository that stores and manages all multimedia information (texts, sounds, graphics, still images, video streams) plus all metadata information for each learning object.

The "learning object" is also defined by Ip, Young and Morrison (2002, 317) as a piece of educational information including content based on specific learning objectives, while "content" is the material used to convey the subject matter (text, graphics, audio, video) plus all the interactions between them. Each learning object has a set of descriptive metadata, which describes what the object contains. Typically, metadata includes all the necessary information about the educational content (language, date, duration, size, author, copyright information, and so on) and through this, the learning objects can be indexed, searched and re-used more efficiently (McGreal 2004, 124).

In the procedure described above, there are two main problems. First of all there is the difficulty posed by the lack of standardisation and guidelines of the learning object (Allert, Dhraief and Nejdl 2002). However, to re-address this issue, numerous workgroups and institutions have already been established in order to standardise both the learning objects and guidelines mentioned above. For example, initiatives such as the Dublin Core Metadata Initiative, IEEE, IMS Global Learning Consortium, Alliance of Remote Instructional Authoring and Distribution Networks for Europe, Aviation Industry CBT Committee, Advanced Distributed Learning Initiative, and so on, can illustrate such efforts at standardisation[4].

Secondly, a potential problem may arise from the fact that the learning objects are not designed exclusively by educators. There may not always be then one specific methodological approach to account for the specific needs of language and literature teaching.

5. System structure, contents, and aims

The basic design options described above have led to the creation of an e-learning platform model capable of supporting a variety of learning objects. However, its application and customisation, especially in the case of the eFRL, have been dictated by the organizational demands and the teaching needs of the Department.

The Department offers a variety of courses on French language and culture, linguistics, didactics, translation and, in recent years, new technologies and their application to the teaching of foreign languages. The idea for the creation of the eLearning platform was to offer distance users a variety of subjects covering, as far as possible, all these sectors. Therefore, in its first application, the system offers users the opportunity to deal with nine courses, divided into three general directions.

The first direction concerns European Civilization. The courses are:

a. Literary trends in Europe: Middle Age – 18th Century.

b. Literary trends in Europe: 19th and 20th Centuries.

c. European Theatre.

The second direction concerns didactics and the linguistic training of professional adults. It also consists of three subjects:

a. Analysis of linguistic needs.

b. Design and development of programs for linguistic instruction.

c. Development of language learning packages for professionals.

Finally, the third direction concerns Information and Communication Technologies (ICT) for language learning. Here, too, three subjects are offered:

a. New learning environments.

b. The development of multimedia didactic material for language learning.

c. Linguistic databases and electronic dictionaries.

The content of the above courses was developed by groups consisting of two / three people, specialists in each area, based on common specifications concerning the internal structure of each course and the standardisation of the learning process. In this way, each course includes the didactic material, relevant bibliography, links to websites on the subject chosen by the teacher, and multimedia files (video or sound). Activities and, in certain cases, auxiliary applications are also included.

It should, of course, be noted that the aims of each course are different. Given the fact that the students from the department already have quite a good knowledge of the French language, the development of language skills is sought together with the development of professional and technological skills, as such are main aims in the project.

More specifically, the lessons in the first course, which concerns European Civilization and European Theatre, chiefly target the development of text strategy approaches. The texts provided to students and their analysis aim to help develop mechanisms that will enable learners to deal with similar texts. The exercises have also these aims.

The lessons in the second course, concerning didactics and the linguistic training of professional adults, concern the future language teacher, who should be able to:

-diagnose the language needs of a target group,

-plan language training programs for specific audiences,

-acquire the know-how's for the development of communicative activities and the design of appropriate exercises (Figure 7-2 displays an example).

Finally, the lessons in the third course, concerning Information and Communication Technologies (ICT) for language learning, aim at the development of technological skills (see section 1). This involves the knowledge of web search techniques, as well as additional knowledge concerning software for multimedia editing and production, videoconferencing, web page authoring, electronic exercise development, and the use of virtual learning environments.

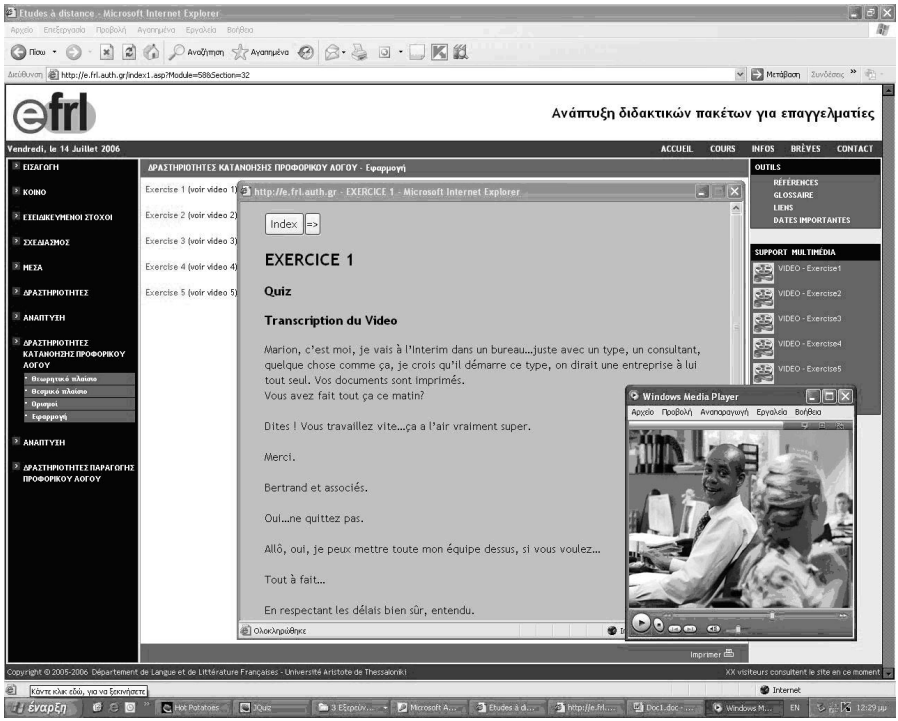

Fig. 7-2: Example of closed-type exercises for the control of oral speech comprehension (Course "Development of learning materials for professionals").

6. System performance

The general structure of the courses mentioned in the previous section can be seen on the introductory page of the eFRL. Here, the user is called upon to select the course to be followed.

An introduction to the course (advanced organiser) and its aims are presented on the introductory page of each course. This framework helps the user to become aware of the use of the lessons to be taught and the relationships between them, while, at the same time, provides motivation to learn and the opportunity to assimilate new knowledge more easily (Melton 2002, 42-43). As mentioned, the working environment is common to all courses and follows a particular format (Figure 7-3).

Fig. 7-3: Course "The European Theatre", Module by Jean Anouilh

The lessons that form the teaching material of the course appear on the left-hand side of the screen. Each course consists of 10 to 12 lessons. The student can handle them autonomously, at their own pace and in their own time. The content of each lesson appears in a sub-menu and differs according to the category of the course. It consists of three / five different learning objects handled at each time, which include theory, extracts from authentic learning materials, PowerPoint presentations, pdf files, or activities relevant to the topics dealt with in that particular lesson. The content of each learning object appears on the central area of the screen, which is the only frame of the environment that varies depending on the user's choices.

Concerning the multimedia material that the teacher wishes to accompany each lesson with, audio-visual utilities are provided on the right-hand side of the screen. A large number of multimedia files of any kind (sound, video, animations, etc.) can be placed here. These can be of a purely informative kind, or form the basis for a project or an activity. The multimedia files can be played via separate floating windows, which allow the user to access them while having simultaneous direct access to the theoretical content of the lesson (appearing in the middle of the screen).

At the end of each lesson, the student is called upon to deal with an activity. The rubric for the activity and the relevant instructions for the project that should

be done appear within the central framework, while the material for the activity–written or in multimedia form–appears within a floating window. The student is provided with extra help in the form of written explanations, if requested. The activities are submitted by email, using the relevant key on the menu that is adjusted and sent to the teacher of the particular course.

In the present phase, tutoring is carried out by email and, according to the experience acquired through the application of the system, the possibility of using other means of teacher-student communication will be examined.[5]

A system of self-evaluation is also included in each course. In some courses it consists of questions accompanied by the correct answers (which appear only after the activation of the relevant button), while in others it is the format of Hot Potatoes[6] exercises which allow the user to check the knowledge they have acquired. In this case, the choice of an exercise leads to the opening of a floating window that contains both the exercise and the evaluation system. The user must simultaneously use the multimedia archive which the exercise refers to in another window, while they can read the theoretical part of the lesson at the central part of the interface at the same time.

The final evaluation of the students will be conducted at the end of the semester by an on-site, rather than distant, written examination to ensure both the security of the system and accordance with the constitutional policy framework of the University.

At all times, a series of tools ("outils" on the menu), adapted to the course being covered, is at the student's disposal. The top right-hand area of the screen is reserved for these tools. This category includes links to the bibliography suggested by the teacher for each course, external sources on the internet which are suggested for further study by the student, as well as certain applications developed for the eFRL

The first of these applications is the glossary ("Glossaire"). This is not an extensive dictionary but one that is especially adapted to the course content, so that the student can find specialised help concerning terms, expressions, or words used in the course. The glossary opens in a floating window and is accessible and printable at any time.

The second application was designed by using the "Timeline Creator" freeware program developed at the Centre of Educational Recourses of John Hopkin's University. Its aim is to offer students a complete picture of the field the course deals with and its evolution in time, connecting the knowledge, historical figures and social developments with the era in which these took place or existed. It is a chronological table (timeline) on which the writers, their works, the important editions, and the great social and political events are placed. The application covers the period from the 8th Century (Charlemagne in France) up until and including the 20th Century, and is also displayed as a

floating window. Users can have slides at their disposal, with the help of which the date can be selected. Important events appear for each date with explanatory symbols that can be selected for further information to consult. The application covers four thematic areas: European history, French history, Social life, and French writers and their works (Figure 7-4).

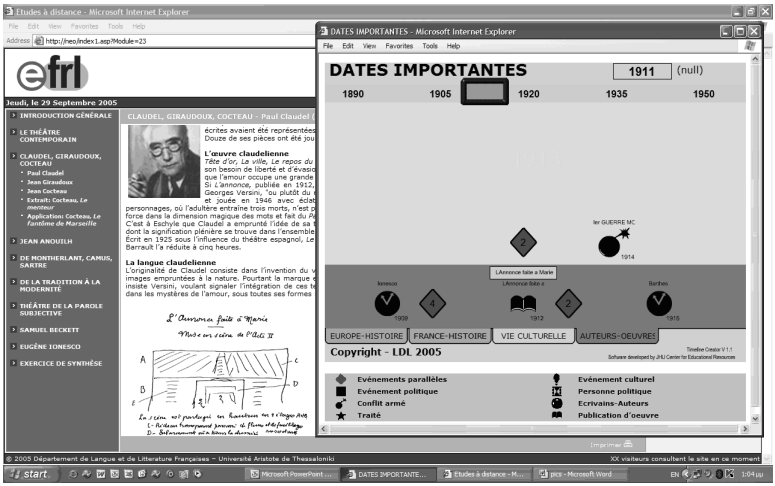

Fig. 7-4: The timeline application. Course "European Theatre"/ Module by Jean Anouilh

At present, the eFRL platform is going through a period of experimental application, evaluation, and correction. As part of the initial phase, three courses have been presented to a group of 40 students from the department, one from each of the directions mentioned in Section 5. The students were asked to comment on issues such as course structure, user interface, navigational system, auxiliary tools and all other multimedia elements. Feedback from these students has been very encouraging, while their first impressions (recorded in evaluation questionnaires) have also been positive. In particular, students felt satisfied with the course content and the activities as well as the auxiliary tools. The courses of "Literary trends in Europe" and of "Didactics and the linguistic training of professional adults" have aroused great interest due to both the way material is presented and the support offered through multiple activities (according to recorded answers).

Several of the comments and suggestions have provided feedback on the original design, correction of errors, and oversights. For the second phase, all

suggested activities will be tested at length by a new group of 40 students so that possible malfunctions can be fixed prior to regular inclusions.

7. Conclusions: Future extension and support

The distance-learning program of the Department of French Language and Literature presented is to be included in the department curriculum in October 2008. Our belief is that the eFRL platform is a step in the direction indicated by the promotion of language learning, as it tries to provide a solution to the problem of the ICT gap growth at our institution of higher education. It also aims to face up to the educational challenge of inadequate levels in digital literacy (i.e., where training of foreign language teachers is needed). To this end, it offers a combination of courses in an effort to cover the priority areas for innovation and development of the eLearning Action Plan, i.e., languages, technology and culture.

The eFRL system is one of the initial applications of the eLearning platform and the database designed to constitute an expandable and adaptable platform of distance learning training. This model can be expanded to host different courses with corresponding lessons, while maintaining the same structure, interface and form of data storage on its database.

In its present application, this model has been adapted to suit the technological restrictions set by the reality of Greek telecommunications. Certain elements, such as the provision of streaming multimedia or the provision of help through video-conferencing, have not yet been realised, despite the fact that the original planning foresaw these. At this point, the situation appears to be changing, as the cost of telecommunications is rapidly falling, and, even more so, as the promotion of privileged wideband connections to university students is taking hold[7]. Thus, the program will be able to offer real-time audiovisual communication and richer multimedia content at a later phase. In the light of this, research will continue into the issue of self-evaluation, while the addition of new courses will be considered, depending on the results of the program and on how well it is to be received by students.

Notes

[1] The target proportion has been met as 1/15 in all EU schools by the end of 2003.

[2] A significant rate of teaching should be delivered using eLearning tools and methods, according to current EU reports on eLearning planning (e.g., COM 2001, 172; COM 2002, 263). Naturally, this presupposes that the students themselves will have a sufficiently high level of computer literacy concerning office applications, telecommunication software, and internet procedures.

[3] Horton and Horton (2003, 14) propose the following structure in the system: Curriculum, course, lesson, pages, media. Based on this, our own structure is: Course, lesson, learning objects (texts, pages, media).

[4] Most European initiatives are related to the Resource Description Framework (RDF), the Warwick Framework, and to other activities of the World Wide Web Consortium. They are also connected with activities whose aim is to establish common standards for the development of the Semantic Web.

[5] Since ADSL connectivity is not particularly widespread in Greece, the majority of the students will be connected to the system via PSTN or ISDN connections. This lack of infrastructure is the main reason the solution of video-conferencing was not examined at this stage.

[6] The software "Hot Potatoes" (Half-Baked Software Inc) allows for the creation of interactive exercises of closed type, such as Cloze, Quiz, Cross, Match, and Mix.

[7] The cost of ADSL connections in Greece (in June, 2006) was 20 euros per month (for 512 Kbps). The "DIODOS" Project caters for the provision of such connections to students at half the cost.

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CHAPTER EIGHT

THE APPLICATION OF ADAPTIVE HYPERMEDIA SYSTEMS TO SPECIFIC LINGUISTIC / COMMUNICATIVE LEARNING TRAITS

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1. Introduction

The evolution of Information and Communication Technologies (ICT) in conjunction with foreign language (FL) developments tends to lead to the inclusion of computers in all types of learning situations in the classroom, especially for communicative roles. In Extremadura, our research group, "GexCALL" (Research Group for Computer Assisted Language Learning in Extremadura) investigates the development of computer-based language material for communicative purposes. In our region, the ratio of four primary / secondary school students per one PC is higher than the average in Europe for this level (Cumbreño Espada et al. 2006, 47). In addition, a 2003 Decree in Extremadura establishes that computer use and foreign language learning are priorities at all stages of education. We observe that surveys on educational and socio-cultural features in our region can yield significant feedback on actual demands, needs, and preferences for learning. Such attributes have to be observed, processed, and analysed in order to determine the type of suitable computer tool that may effectively adapt to educational traits and patterns. We have retrieved findings in this type of research that lead to the need to develop a specific system that may enable a high degree of flexibility for the learner's individual preferences and needs.

The SHAIEX (Adaptive Hypermedia Systems applied to Language Learning in Extremadura) Research Project aims to design an Adaptive Hypermedia System (AHS) for the teaching and learning of English as a Foreign Language (EFL). The tool is basically run via the integration of a tutoring system connected to a hypermedia setting so that prospective users may advance within the lessons at their own pace. The computer environment on which our tool is to operate is called gnuLinEx (a free operating system designed by computer specialists in our region of Extremadura, and being currently implemented in all primary and secondary schools).

In the following sections, we propose a description of our SHAIEX project. First, different surveys and questionnaires are analysed, and main findings described in order to pinpoint key characteristics in the learning environment in terms of educational, social, and pedagogical traits. Secondly, data collection and analysis yield significant findings allowing for a contrastive study of graphical, content, and interaction preferences and abilities during the design of the SHAIEX lessons. Thirdly, we provide some results related to the system development, and an evaluation of some of the tool strengths and weaknesses. We believe that for higher education research, this type of linguistic, technological and socio-cultural analysis proposed can render useful contrastive information for inter-disciplinary studies of FL and computerised environments (i.e., CALL and foreign language teaching).

2. Theoretical framework

An AHS (Adaptive Hypermedia System) should be designed from a multi-disciplinary perspective that integrates linguists, teachers, computer analysts, graphical designers, counsellors, and educators. The GexCALL group actually formed as a result of such common interests. For our system, in addition to the advantages of hypermedia capabilities (the blend of multimedia and hyperspace utilities), adaptability to users' own learning levels and pace is aimed at by means of an adaptive tutoring system.

By relying on a tutoring system, the hypermedia tool should adapt to the specific learning situation (i.e., the AHS is planned and designed after we account for preferred items in the classroom, e.g., topics, lessons, type of activities, etc). The use of a tutor enables the supervision of the learning progress, if made. This device controls the scores and programs activities according to evolving performances given by such scores.

Based on Wu, Houben and De Bra (1999), three main components constitute the AHS architecture: The user model (UM), domain model

(DM), and teaching model (TM), combining all three as the storage layer. As Wu, Houben and De Bra (1999) describe, operations should take place at a conceptual and implementation level. Our own AHS model is shaped by factors such as creating content, composite or abstract concept creation, establishing relationships between concepts, and creating rules for adapting content and links to each individual user.

The hypermedia part (video, audio, images, links...) allows for the integration of resources in the form of sequences which the student can manage at his / her own pace. Such are special traits needing exploration and adaptation to age levels, as Milton and Garbi (2000) explain. Thus, for example, for primary school (age 6 to 12), Milton and Garbi (2000) explore the usefulness of 2-D and 3-D activities to enhance particular language areas (e.g., notions and functions), and determine that similar approaches may be carried out for younger students.

The tool must be used to accomplish specific verbal / non-verbal functions which the learner should exploit without being aware of big efforts. In other words, the graphical part should contain material that is attractive enough, based on actual surveys conducted in the schools for the determination of both graphical and content preferences for the SHAIEX lessons. The key point in this respect is the search for consistent motivation in order to foster learning incentives, in agreement with Norman (2000).

Related to this key aspect of motivation via ICT tools, an endless discussion ensues in academic forums on the appropriateness of computers for learning and academic achievement. Can this point really be demonstrated and expanded, or, on the contrary, should ICT use be strictly controlled or even avoided until certain stages of education? According to Healy (1998) and Cordes and Millar (2000), computers alter children's intellectual and social development, and their use darkens other classroom resources.

Luckily though, such claims have been counterbalanced by research on productive use of ICT to enhance communication and motivation to do so. Kelly and Schorger (2001), for instance, explore how 25 children aged between four and five succeed to establish cooperative work via information exchange and conversation with their classmates when using computer programs. In this sense, it is noted that for some children, ICT possibilities open up a unique way of exploiting their abilities of creative cooperation with other children. In this line of work, the First European Conference about ICT and Children Education (held in Brussels in 2002) served as a nexus on the demonstration of positive roles conveyable to ICT in children's learning. It was concluded that adequate methods through

ICT can encourage the development of skills among the youngest students. Other studies, like Ellis (2004), conclude that social and environmental motivation in ICT could increase interest and enhance positive attitudes towards language acquisition. Such claims actually echo words from Pintrich, Brown and Weinstein (1994), where it is asserted that contextual as well as environmental factors play a major role in the integration of technology.

Regarding AHS technology, Brusilovsky (1996) notices that adaptive hypermedia applications are different from ordinary World Wide Web sites and multimedia software, as the former type has the goal of guiding learners toward the paths that are considered optimal for learning. In addition, such systems may foster children's effective learning and knowledge development by enhancing cognitive and social perspectives, including games, interactive project tasks, child-to-child interaction, immediate feedback, collaborative projects, etc (Brusilovsky 2001).

In such AHS, the conjunction of multimedia activities and hypertext environments allows teachers to integrate different media and key information, explored and presented through different sequences and according to users' needs and levels. Also, the AHS lessons should include key language that enables both understanding and challenge for the child according to his / her own age level. Thus, we believe that, in addition to the learning context, media traits, and teaching preferences, the linguistic content in the lessons should be interpreted and based on our analysis of real language data, derived not only from actual teaching material (e.g., textbooks) used, but also from corpus study of communication among three-, four-, and five-year old speakers (e.g., interacting with other children, adults, parents, etc). As regards this naturally occurring language for the system, we follow claims by corpus linguists such as Biber (1988) and Sinclair (1991), among others, who stress the need to rely on corpus material containing the type of target language data that needs investigating at higher education and research.

All the above factors (i.e., adaptiveness, hypermedia graphics, content, and language) interact and play crucial roles in the determination of adaptability and flexibility traits for the learner. Nonetheless, we realise that a special emphasis on the visual / graphical design in relation to the young students' preferences is directly related to their motivation and interest in the use of the system. In this sense, we agree with Cooper and Reinmann (2003) in that graphical characterization, layout, setting, and interface function as direct factors for the increase in motivation and interest among learners. The graphical setting must be put together by design specialists in joint collaboration with computer staff for the

development of an attractive hypermedia system. The SHAIEX project is devised according to the notion that graphical design should provide us with boundless solutions, where images are highly important for the children's mental structure (cf. Díaz Jiménez 1993) and form the focus of the graphical development. This option is reinforced by studies that demonstrate that even older children (e.g., Ibarra and Ripoll 2005) perform better when the graphical design is highly emphasised.

3. Methodology: Quantitative and qualitative scopes

Detailed studies on the specific domain of early age children's use of ICT in conjunction with FL are still few and recent. In this line of work, it is fundamental that quantitative and qualitative analyses (with statistical measurements) of all possible learning / teaching factors be carried out to aim to minimise subjectivity in the findings (obtained through the application of the system). Statistics is the chief tool in educational research for significant data collection, classification, presentation, and summarization. Such a scope leads to our planning of the research involved in SHAIEX and the analysis of results.

The statistical view has been set at three different levels in our context: 1. The institution (schools surveyed in our region to obtain information on teaching and learning traits); 2. Language and discourse (by means of textbook material and oral corpora); 3. Graphics (by evaluating children's preferences for colour, shape, contour, etc).

3.1 The institutional stage

This phase in our investigation was completed in 2004. First, it comprises a quantitative study focused on contextual content related to the children's learning environments (school and educational traits). For the adaptation to the prospective users' profiles, we must keep in mind that certain social, educational and personal characteristics, such as the kids' age levels, their preferred learning styles, children' previous knowledge, and so forth, are crucial for needs analysis. The survey data includes specific socio-cultural and educational characteristics for needs analysis in which the target schools as well as teachers' observations of classroom preferences / curricular interests, etc, serve as reference.

The first questionnaire was answered on-line by most teachers (available at the research group's web site—see bibliography—). It was also handed out in schools in paper form. It aims to find general information about socio-cultural and educational characteristics in the

schools. Thus, we worked on an overview of our own region, Extremadura, and more in particular, on a total of 73 kindergarten / primary schools. The main information relevant to our quantitative study from this questionnaire is summarised as follows:

(1) There is an average of 71 students per school and 17 in the English classes.

(2) 38 percent of the teachers using English in class do not have a specific degree in English.

(3) There is an average time of one hour and 15 minutes dedicated to English classes per week.

(4) 51 percent of the schools offer English as an extra-curricular activity in afternoon / evening classes.

(5) There are about four students per computer (a higher ratio than the average in Europe—see Figure 8-1 below—).

(6) Computers are used less often than textbook, audio, and other material (see Figure 8-2).

(7) 55 percent of the English teachers use computers in class either as a supporting tool or for games.

(8) 54 percent of the teachers perceive a main demand for software that adapts to the students' levels (i.e., adaptability problem as a priority over other issues such as self-access, evaluating, etc).

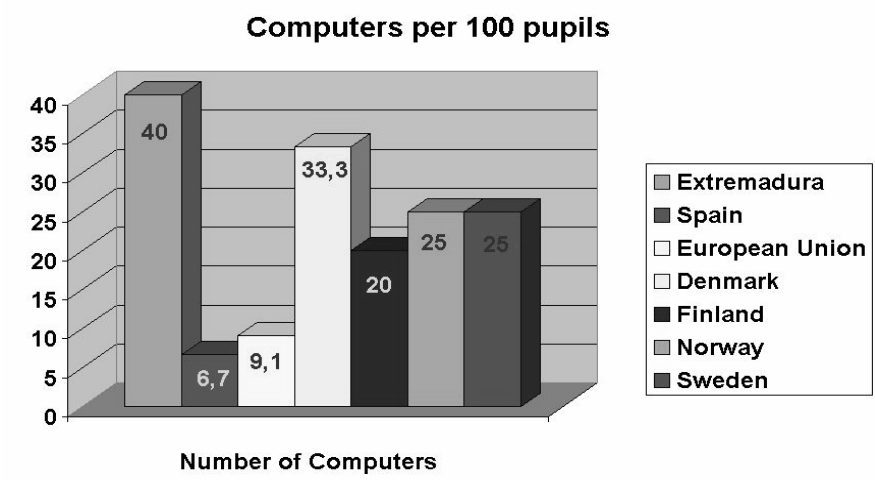

Fig. 8-1: Contrastive view of number of computers per students in primary and pre-elementary schools

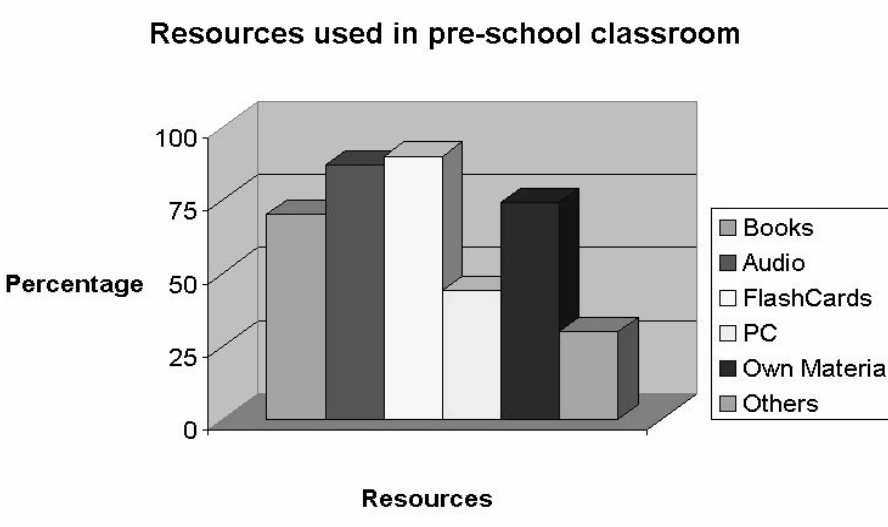

Fig. 8-2: Contrastive view of computers vs. other material used in class

Secondly, we have processed data from a qualitative study in one single school where we have on-going collaboration with the kindergarten teachers: the "Colegio Luis de Morales" in the city of Badajoz, Extremadura (web page in bibliography). This closer inspection aims to cross-examine data from quantitatively oriented surveys above and to contribute direct feedback for the AHS lessons. In that school, only two teachers use English in class for an average time of two hours a week. In the centre, the demand for relevant software and content that adapt to the young learners' levels is corroborated (supporting claim 8 above). In fact, this need is explicitly addressed by all teachers (from all subjects).

In relation to skills and micro-skills favoured in class, Figure 8-3 summarises the data about preferences and interests exploited with learners. As can be observed, oral comprehension and production are regarded as especially significant and thus emphasised in class. Vocabulary is also practised quite often by means of songs and inductive games. However, written production and comprehension are not valued as important at these early stages.

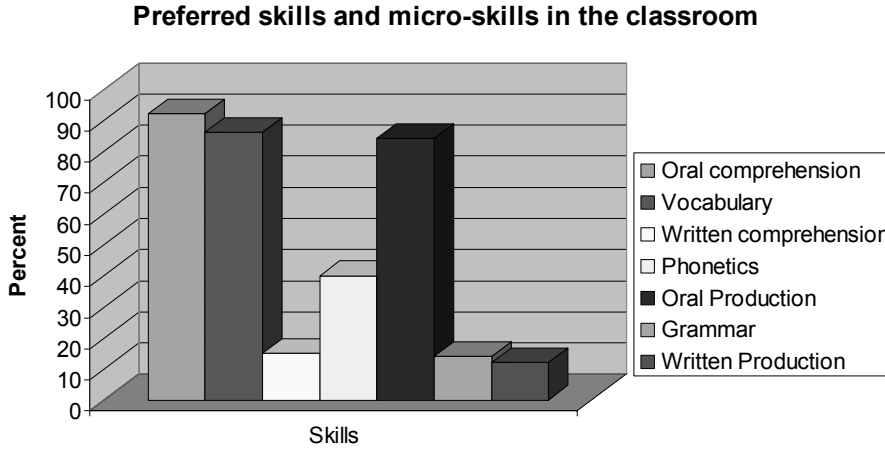

Fig. 8-3: Teachers' answers on preferred skills and micro-skills

For conceptual information retrieval, a second questionnaire was handed out to the teachers in our target school. With the information requested in this case, we aim to elaborate charts of specific content and lessons to be programmed interactively for AHS. Table 8-1 below displays the key topics that teachers had to check depending on the type of learner to whom the unit is addressed (three, four, or five years old). In turn, teachers have also provided us with feedback regarding each unit dealt with according to the different age levels. Such information has been contrasted with our own analysis of language and content below (see Table 8-2).

3.2 The language stage

During this second phase (completed in 2005), information was obtained, processed and analysed for a double-fold purpose: To determine and / or confirm the topics and concepts derived from the surveys above; to specify the linguistic content for the lessons.

For the determination of units, topics, and linguistic content in Tables 8-1 and 8-2, six textbooks were used. Three of them as scholarly reference: Hearn and Garcés Rodríguez (2003), Phillips (1993), and Reilly and Ward (1997); and three others as actual reading / teaching material used in our region: Read and Soberán (2002), Harper and Reilly (2004), and Reilly (2004). All the books focus on the communicative usage of

EFL. Their age levels range from three to eight years old. In the process of integrating linguistic-communicative information, books have become crucial reference.

Didactic Units	3 years	4 years	5 years
Hello! (Presentations)	X	X	X
The Body	X	X	
The Family		X	X
Toys			
Animals	X	X	X
Clothes			
Food			X
The House			
The School	X	X	X
The Festivities (Birthday Party, Easter, Halloween, Christmas)	X	X	X

Table 8-1: Topics exploited at each age level

In addition, selected transcripts from the CHILDES corpus (Child Language Data Exchange System), freely available on the web (see references), have been used for data collection and analysis. Our overall corpus selection comprises nearly two million words of real conversation carried out at the targeted age levels (children with children and children with adults). American English spoken by natives can thus be directly and accurately approached by means of concordance software and statistical programs, determining salient linguistic / discursive characteristics.

For instance, we have come to observe that the higher the age level is, the larger the amount of distinct words used by the children (i.e., higher lexical density, measured by a standardised ratio between total number of words and distinct words used). Other statistical examples are the functions used by the speakers at all age levels: We find that, overall, there is a salient high rate of interpersonal exchanges, declarative sentences, and connectors in children's discourse (by comparison with other oral texts by adults—e.g., MICASE corpus data [see bibliography]—). Four-year olds, especially, produce an uncommonly frequent amount of these communicative functions, whereas three-year-old children utter more declarative sentences and rarely use connectors; in turn, five-year olds use more imperatives and slightly fewer instances of declarative statements (by statistical comparison among the levels).

Such observed elements can pave the way into the analysis of each separate age level and linguistic background according to preliminary factors that should be kept in mind. For instance, the use of first person pronouns (mainly "I") by three and four year olds is noteworthy; among five year old children, there are a larger proportion of nouns (nominalizations), and also many more second person pronouns in sentences (interactions). The contrastive view and itemization of the linguistic-communicative data can thus help in the design of the lessons.

Likewise, for the choice of content vocabulary, our corpus-based approach can complement and / or confirm words taken from the textbooks cited above. For example, as we have recently observed in the "Presentations" unit of the AHS, examined below, children should understand and use vocabulary that is familiar, and adjectives like "flowery" and "cozy", for example, albeit appearing in two textbooks, are never used in real conversations with children. Instead, opinion, size, and colour adjectives are used much more; also, nouns referring to animals occupy a lot of time in the conversations.

Concepts	3	4	5	Linguistic content	3	4	5
Colours	X	X	X	Like/ Dislike	X	X	X
Greetings and introductions	X	X	X	Prepositions	X	X	X
Numbers		X	X	Commands (Imperative) Let's		X	X
Sizes and shapes	X	X	X	To be	X	X	X
The weather			X	It is …	X	X	X
Feelings (love, hate …) and likes (I like/ I don´t like)	X	X	X	Are you ….?		X	X
Specific Vocabulary of unit	X	X	X	To have	X	X	X
Simple descriptions of objects, people ...	X	X	X	Personal and possessive pronouns	X	X	X
Space /time orientation (up, down, near ...)	X	X	X	Can/Could Would you like …			X
Actions (read, jump, run)		X	X	Adjectives Comparative and superlative		X	X
Relatives (family...)	x	x		These is/are		x	x

Sensations, states of mind (happy, bored, I am cold…)	X	X	X	Do/does Yes/no questions		X	X
Daily routines (wash one's hands, have breakfast…) and parts of the day	X	X	X	Wh/ open questions Interrogative pronouns		X	X
				Vowels			X

Table 8-2: Conceptual / content information exploited according to age level

3.3 The graphical level

For the graphical setting analysis, the specification of characters and settings that adapt to the user's preferences is made. Colour is also a key aspect, as brilliant hues tend to point to specific actions or objects carrying out actions. Colour is not an autonomous element in itself, but it defines characters and objects as part of the graphical environment. Thus, in agreement with Brusilovsky (2001), these elements should facilitate the appropriate use of the system, making it ergonomically fit for the child's perception. Ergonomic appropriateness should then be directly related to high degrees of navigation and interaction. Child satisfaction should be an observable development in the process of the adaptation of such features design, as Brusilovsky (2001) states.

The choice of an interactive pet friend for the lesson is made according to students' preferences. Five characters were shown in class: a boy, cow, turtle, elephant, and snake. We have considered that at least three main mascots are needed: A smart one leading the scenes, a clumsier one who never fully understands and needs help from the student, and a complementary pet for carrying out tasks and showing actions. In addition to being asked about their preferences, the 61 students surveyed have coloured the characters.

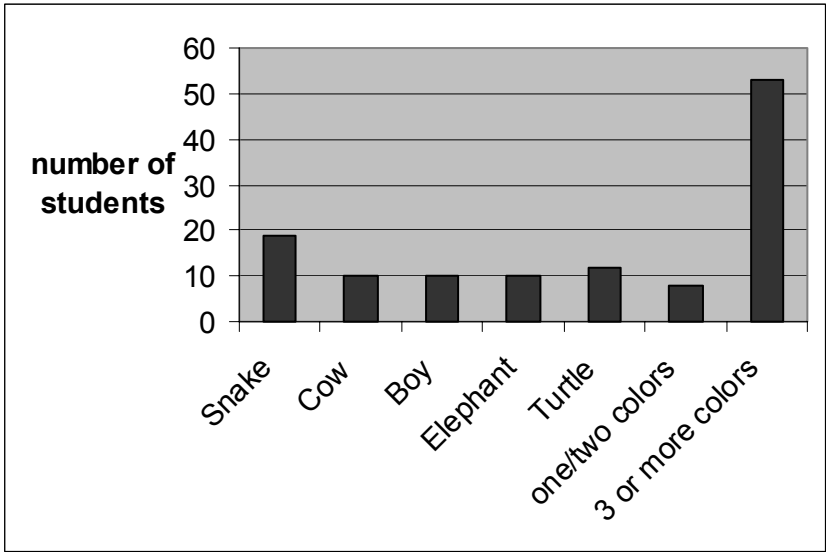

Fig. 8-4: Students' choices in the graphical design analysis

The results of this survey are summarised in Figure 8-4. As observed, the snake was the favourite character among most students, followed by the turtle, and then the rest. In relation to the colour chosen for the interactive friends, the children have also provided us with important feedback. As can be checked in Figure 8-4, most students used at least three colours. These graphical representations have been determined at this stage. With the aid of pedagogy professionals and psychologists in our group, we have also confirmed the validity of such choices for long-term work with our AHS.

4. Results: Lessons and content design

The processing and analysis of information from the previous stages in our project have lead to the design of the interactive lessons in the AHS during the 2005 / 2006 academic year. The preferred skills to be exploited in the learning situation have been oral comprehension and production by means of key vocabulary, in agreement with data from Figure 8-3. For the first type of abilities, oral information transmits the language and discourse addressed through prior data analysis (verbal skills). In the

second case, the challenge is to produce answers with the mouse (non-verbal skills).

4.1 Verbal focus

For the language part, as mentioned, both textbook and corpus material have been accounted for. Table 8-3 provides a list of the most significant words to be used in one of the lessons according to age levels. Lexical frequency and density serve as clear framework references to separate difficulty levels, whose content may also overlap, as can be seen.[1]

Unit 2: Level 1 (age 3): Key Vocabulary: you, I, me, body, head, hand, foot, feet leg, one, two, look at
Unit 2: Level 2 (age 4): Key Vocabulary: you, I, me, body, head, hand, foot, feet leg, one, two, look at, shoulder, three, four, what, this, bodies, he, she, his, her
Unit 2: Level 3 (age 5): Key Vocabulary: you, I, me, body, head, hand, foot, feet leg, one, two, look at, shoulder, three, four, what, this, bodies, he, she, his, her, five, six, seven, eight, nine, strong, long, big, blue, face, eye, mouth, ear nose

Table 8-3: Level difficulty according to lexical density differences

A great deal of interaction (i.e., interpersonal forms) is included in this case, and for that aim, singular first and second person pronouns are exploited. Plural (first and third) personal pronouns, however, are not used until much later (lessons 8, 9, and 10—see Tables 8-1 and 8-2—), in agreement with the data obtained from our previous analyses of textbook and corpus material. In addition, as seen in Table 8-3, third person pronouns are explored at the four- and five- year levels.

Other units, such as 3, 4, and 5 also reflect this hierarchy. These three lessons foster the use of declarative statements and questions (e.g., "This is…"; "What is that? That is?", etc.). In contrast, units 6 and 7 stress the use of connectors such as now, then, also, well, etc, at levels 2 and 3.

A further type of verbal differentiation made is based on transversal topics appearing in a given lesson (e.g., identity, socio-cultural diversity, environmental concerns, family, friends, and so on). In this respect, the system adapts the different tasks of the multimedia activities to the user´s social / cultural knowledge and cognitive level. The scene presented to a child is generated by building the most suitable version.

Figure 8-5 presents an example of the content layout (in the "hello / presentations" unit). In this scene, in addition to the main character (the

snake), three other "secondary" actors show up: Their appearance / non-appearance on the scene and the length of their dialogues depend on the level where they are placed. The unit "Hello" presents the characters´ names, nationalities, personal pronouns, specific vocabulary, and so forth. This type of interactivity aims to familiarise students with diversity awareness (all characters come from different countries and continents) as one of the objectives dealing with educational values and cross-curricular content in the AHS lessons.

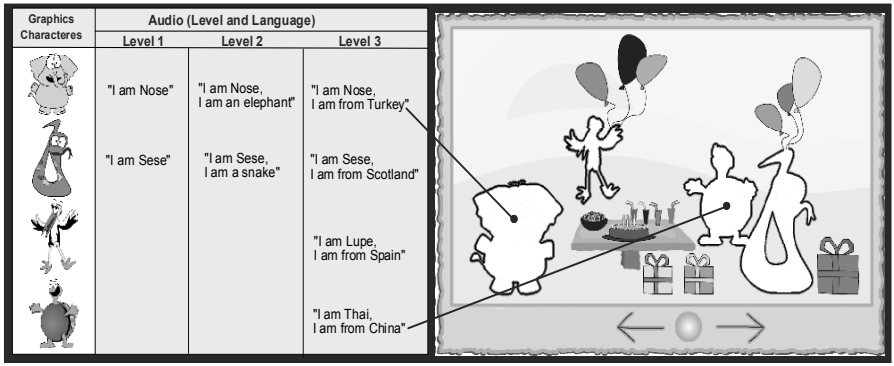

Fig. 8-5: Example of verbal and socio-cultural interaction according to levels

4.2 Non-verbal focus

Prior to structuring the content in the AHS tool, a preliminary analysis has been conducted with eight three-year old and 12 four-year old children in the target school "Luis de Morales". We have had them handle on-line activities created with Author-ware programs (e.g., Hot Potatoes, Castle, etc), which displayed some key topics and concepts to be included in the AHS lessons. The results are used as guiding hints on the type of scaffolding and type of exercises that must be stressed in the AHS.

Too big an effort has been the use of the mouse by the youngest learners. In agreement with Espiritu (2004), there seems to be a difficulty scale in relation to the operations to be carried out with the mouse. For children under four, the mouse itself tends to be problematic. At four and above, the drag / drop movement tends to be more difficult, but clicking may be done relatively easily.

The key is to enable progressive training with the mouse in the AHS lessons, which has greater or less complexity depending on the advances made by the child at corresponding levels. In this sense, levels 1, 2, and 3,

structured in terms of verbal skills, are also programmed according to non-verbal abilities. As depicted in Figure 8-6, the lowest level would only include the clicking of icons / characters for item choice; level 2 should then emphasise clicking and double-clicking as items that are recognised, and level 3 would focus on double-clicks and drag-and-drop operations.

	Level 1	Level 2	Level 3
Mouse interaction style	One Click	Click move click	Drag and drop
Objetives	Identify Characters	Identify Animals	Identify Countries
Number of elements (difficulty)	3	4	5
Language	English	English	English
Text information	No	No	Si

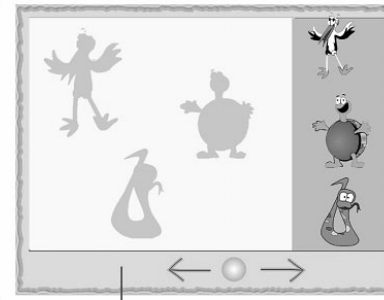

Fig. 8-6: Scaffolding based on mouse operation difficulty at different levels

Experience with the mouse is a main target in our project; in agreement with Wood et al. (2004), the "double click" and "drag and drop" motions can be complicated. Thus, mouse use is adapted in the activities and games being designed to the dexterity that learners may already count on. This assignation of levels implies that, for example, a four-year-old handling the operations effectively may be able to proceed to level 3 for a given activity, or that a five-year-old child may have to start at level 1 in order to train his / her incipient non-verbal skills.

In the SHAIEX web page (see references), an example of mouse movement is scaled as follows: For level 1, the selected character appears on the corresponding screen just by clicking on it; for level 2, the child must click on the introduced character and click again on the right screen—which implies two coordinated movements by the student—. In level 3, the activity involves exercises to drag and drop the character on the right place (demanding a much higher skill level compared to the previous stages).

As regards types of exercises to be offered, we conclude from our analysis of the activities performed by the 20 students that each lesson must be divided into three clear sections: Introduction, interaction, evaluation. One of the main problems encountered in the exercises was the child's lack of conceptual understanding due to their being given little

previous information. For instance, a matching exercise asking them to relate animals and habitats was hard because a graphical illustration of such places had not been done properly. In this respect, children became unmotivated and bored with the task, especially due to the unsuitable or weak provision of visual context.

Motivation is a major factor for the success of our SHAIEX project. We perceive from preliminary results that a suitable graphical interface must not only meet learners' demands and preferences, but be also arranged and laid out according to motivational steps. Three different phases or sections are designed: Presentation or introduction, interaction, and evaluation. The first block aims to familiarise learners with word association and assimilation by interactive means. The second block is designed to consolidate concepts and linguistic content by means of interactive games. The third part evaluates the acquired knowledge. Each section can include one or more activities.

In each didactic unit, the order to go through the blocks is strict. Only when one section is concluded can the child access the next section. Then within each block, all activities must be completed, but in whichever order the learner may wish to act. The description of this pedagogical domain (the interface to be exploited in the lessons) is based on structuralism by tasks and teaching rules (Carro et al. 2002). Its basis is the differentiation between structure and pedagogical domain regarding content. Each didactic unit is a composite teaching task. Decomposing each didactic unit into the three named blocks is described by a teaching rule. In turn, the blocks (composite tasks) are decomposed into one or more nodes of a pedagogical degree. The activity nodes are atomic tasks. Decomposing the three blocks into activity nodes is also described by means of teaching rules.

Our AHS contains two types of rules: AND and ANY (Carro et al. 2002). The former would lead to having the learner perform all subtasks in a given order whereas the latter enables students' processing of subtasks in the order they may wish to follow. A teaching rule can associate certain conditions for activation that can determine if a rule can be activated at a given time or not. Should the rule be activated, some or all tasks appearing on the right side of the rule are activated. The system adaptability is coded in activation conditions since these allow the developer / instructor to specify the requirements to be met by a learner in order to access a certain group or set of activities. Figure 8-7 displays how the content can be shown differently depending on the student's level at stage 1, 2 or 3.

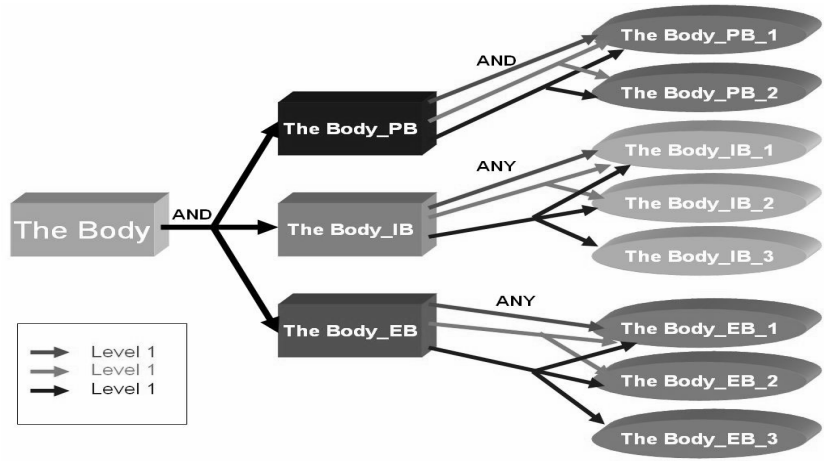

Fig. 8-7: Structure of the AHS domain

Separating structure and contents allows for the association of several contents with the same activity; multimedia elements may be quite different, and yet, a single concept may be treated (see example in Figure 8-8). The choice of content for a specific student is done by comparing the available content with all the characteristics (verbal and non-verbal) of the student.

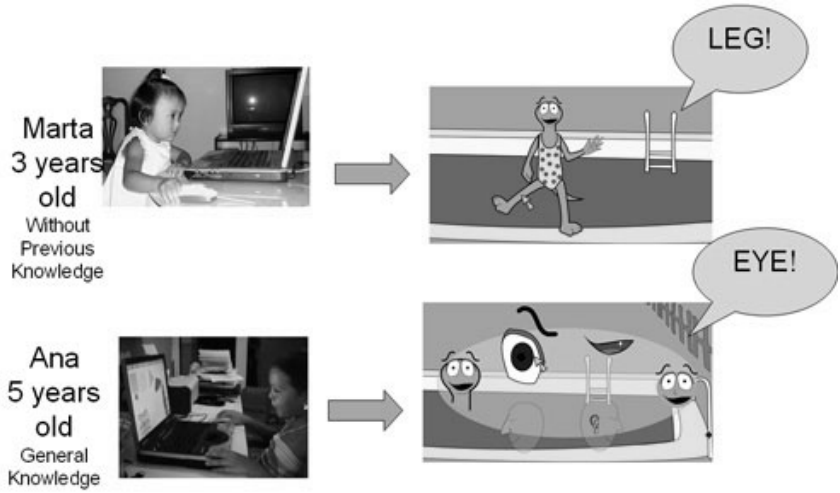

Fig. 8-8: Example of multimedia adaptation

After the selection process for task access, should there be different tasks available, a menu (transition node) is generated so that the student can choose the activity desired at the time. In the general scheme, the process is repeated by restarting at that task and leading the child to the selection of the icon that can trigger the rules for such a composite task. All the information related to each task started by a student during a session on the system is recorded as a new node in a dynamic tree structure. Each node stores attributes related to the learner's activity in such a task (time taken to do the task, success to achieve evaluation activities, completion of task, etc). In this structure, information on task relationships is also stored. Figure 8-9 gives an overview of the AHS lesson structure in our SHAIEX project.

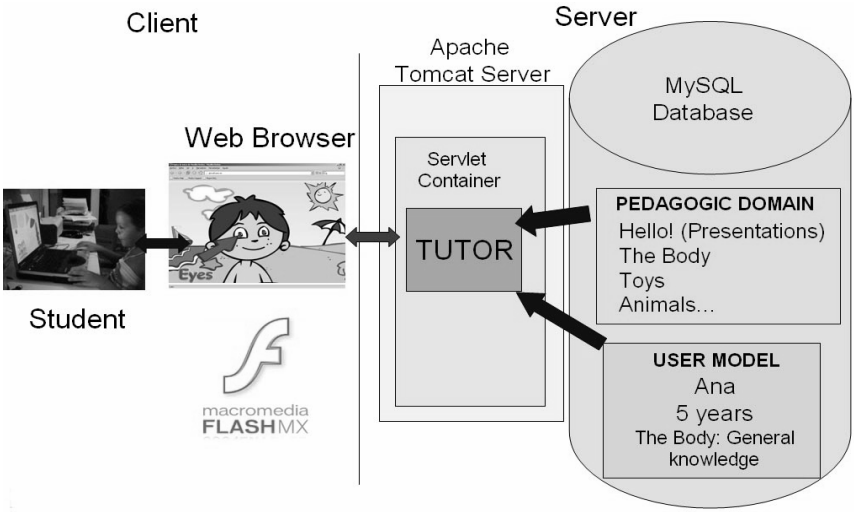

Fig. 8-9: Overall view of AHS activity structure

5. Evaluation: Final feedback

The follow-up procedure for learner evaluation in the tool (block 3 in the AHS lessons) is done by means of right and wrong answers, computed by special devices. Should these counters record a significant number of mistakes, a given activity will not be completed. Based on this incompletion, the activity may begin again, or the learner will be taken back to introduction activities in previous sections.

In the final phase of evaluation (done in 2006), we have tested the use of the AHS in our SHAIEX project by means of activities from units 1 and

2. The experiment has been done with 20 children in our target school (four students at year three, eight at four, and eight at five), and with 25 other children in a different school (school 2), a pre-elementary classroom in the city of Mérida, Extremadura (where age was also divided into three [six students], four [13 students], and five years old [six students]). This second setting has been used to contrast data from the first, and because the teacher is a native Australian, speaking English with the kids most of the time, while in Badajoz, the teacher is Spanish and speaks less English. In addition to the evaluation obtained through the tool, two forms of data collection were used: A questionnaire asking children about their impressions on the lessons and activities, and face-to-face interviews with the teachers.

In Badajoz (school 1), there was generally a larger amount of mistakes made by the children, especially at three and four years of age (55 percent more than in the second school). In this other class, in turn, more students were able to start at level 2 (35 percent more than in the "Luis de Morales" school). Table 3 displays the overall mistakes made, average number of times to get activity right, and average time taken to complete a lesson.

	Mistakes	**Repeated task**	**Minutes taken**
School 1	201	5	22.38
School 2	130	4	23.47

Table 8-4: General scores achieved by each group in the experiment

Such differences in scores and abilities coincide with more students understanding the content (lessons) in the school in Mérida, as derived from the questionnaires (Figure 8-10) and the teacher's comments. In contrast, there was a general consensus in both schools about interest in the program (especially in terms of the graphical display of characters, interactivity with animals, such as the turtle, snake, elephant, and their setting, etc—see Figure 8-10—).

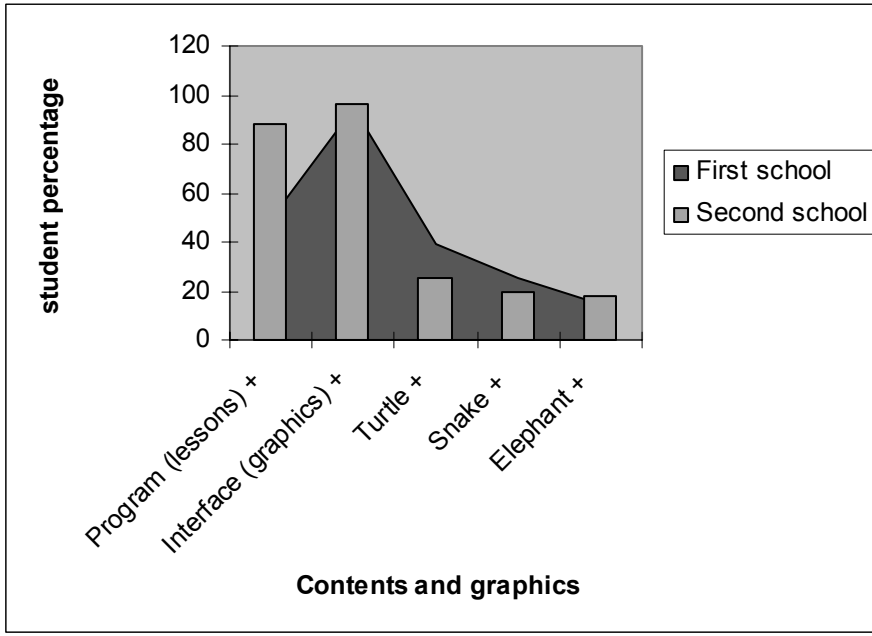

Fig. 8-10: Students' answers to questionnaires regarding content in program

In relation to non-verbal skills, using the cursor, clicking, and drag / drop operations with the mouse were qualified as difficult movements, although they somehow turned out to be less hard for the second group than in the first school (see Figure 8-11). A similar percentage, nonetheless, of students in both centres refer to their difficulty to sometimes follow the navigational options of the system, in which double-clicking is considered the hardest action to achieve.

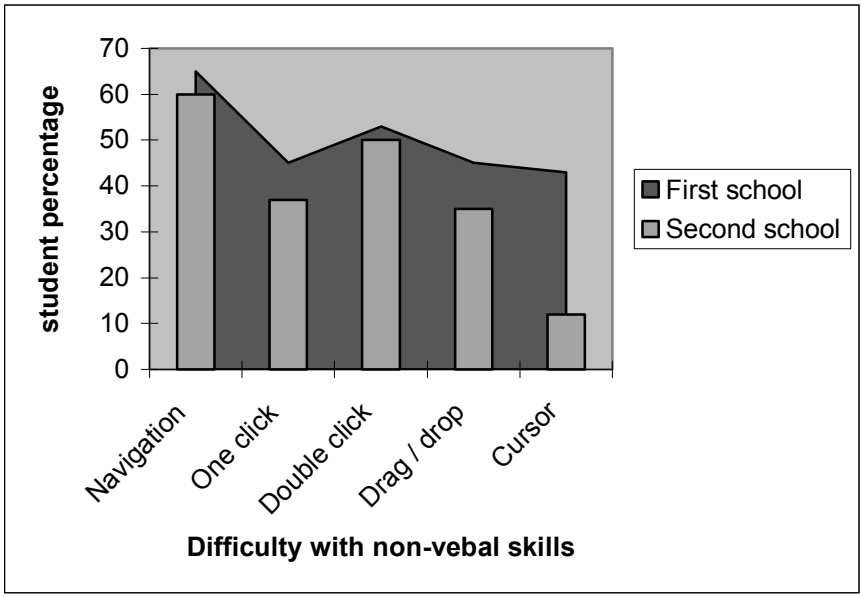

Fig. 8-11: Answers by students regarding difficulties with non-verbal skills

Finally, in the conversations with the teachers, insight from the experiences in the classroom was observed, noted, and discussed. The teacher in school 1 points to a main cause for some lack of oral understanding in the lessons: Excessive external noise. What happened is that a few children used loudspeakers to listen to the lessons, and thus noises interfered. In contrast, all the students in class 2 used earphones.

Teacher 1 told us that he could check with some learners that the speed of speech by the characters was sometimes high, especially for children under four. Another reason for less motivation with the contents in class 1 may have been due to too long waits between one block and the next in the lessons (navigational elements). Teacher 1 actually noticed some impatience on the part of some students, and completely agreed with problems expressed by students regarding non-verbal skills (Figure 8-11).

Teacher 2 confirmed all the children showed their enthusiasm for the program multimedia display—above all, in the case of surprise appearances in the scene by the characters, the voices, and the music included in the conversations—. Only some five-year olds expressed

certain dislikes in relation to the colour of the setting ("a bit drab"), but agreed that the "characters are cool".

Both teachers provided some opinionated remarks on possible improvements for the visual display: Teacher 1 advices that the background drawing should be made in less thick lines, the stars indicating correct answers should be only used for night time, grass should be dark at night, and buttons to click on should be bigger (this way, younger children may have less difficulty with "catching" the items). Teacher 2 added that, for motivation increase, perhaps there should be claps as background noise when answers are given correctly.

6. Conclusions

This study has focused on the description of our SHAIEX project as a means of producing research information from multi-disciplinary analysis (i.e., foreign language teaching and computer systems at higher education). We have aimed to integrate ICT and EFL through the planning and design of lessons in the AHS. In addition to linguistic development, our project discovers the need to include transversal knowledge in the system, such as awareness-raising about diversity, family values, friendship, etc.

As an introductory needs analysis of the early age EFL learning context in our region, a previous stage of data collection (different surveys and questionnaires) in schools has been described. The core findings during this phase reveal key characteristics in the early age learning environment in terms of educational, socio-cultural, and pedagogical traits. Thus, a quantitative scope of school features in our region contributes significant information for the establishment of general approaches to the system. By checking qualitative data in our target school, conceptual, linguistic-discursive, and graphical priorities are specified for the orientation of verbal and non-verbal elements in the AHS. Other means, such as textbook material, corpus data, and children's preferences, have also lead to setting up the type of content and visual displays needed in our research.

Data collection and analysis, by providing such significant findings, allow for consecutive contrastive studies of graphical and content items, interaction preferences, and main skills to develop. During the design of the SHAIEX lessons, all such features have been kept in mind and followed as closely as possible. The nexus in the design has essentially been software suitability, a fact stated by teachers as one of their main concerns regarding technology, in agreement with computer experts.

In the evaluation phase of the system, the results obtained point to certain weaknesses in the AHS. In general, it seems that the layout and arrangement of the lessons awake interest and even increase motivation, according to the results and answers. Verbal content (i.e., vocabulary, dialogues, topics, concepts, etc) seems to activate motivation for input learning; likewise, the graphical layout is valued as quite convenient. Overall, the pending approach to the system that must be reconsidered for improvement may be diagnosed as follows:

a. The AHS lessons and content tend to satisfy the target learning context demands, but some questions on graphical / sound elements must be readdressed and corrected (e.g., size of icons, transitions, colours, speed of characters' dialogues, etc).

b. External noise is a key aspect to consider for the understanding of the content. If used with loudspeakers, the tool may not be as effective, since voices and music may interfere with other computers. Sound quality should thus be studied further so that the tool may be used successfully with other output devices in addition to earphones.

c. Mouse use may still be too complicated, even though we have attempted to scale the activities starting at a zero non-verbal skill level. Perhaps, much more training should be a priority in the system.

As a means of motivational input, we believe that the system is already working; the tested schools have shown their liking and support not only for the establishment of communicative roles with the lessons but also because of the appeal of multimedia elements. In this respect, as one of the teachers pointed out, the AHS can become an ally for the teacher, focusing on having students learn by engaging with productive media and enjoying the content. Our research should thus strive to build such motivational bridges between higher education research and specific learning traits.

Notes

[1] Corpus data in the oral transcripts indicates that many content words and structures are already produced in specific contexts with three-year-old children.

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Part IV

The European Framework and Specialised Discourse Study

CHAPTER NINE

A LITERACY PORTFOLIO FOR UNIVERSITY STUDENTS: ACADEMIC AND PROFESSIONAL DISCOURSE DEVELOPMENT WITHIN THE EUROPEAN FRAMEWORK OF REFERENCE FOR LANGUAGES[1]

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1. The need for academic literacy in English

Adult literacy is generally known as the ability to use written information to function in society, to achieve one's goals and develop one's knowledge and potential (Smith 1998). But we may ask ourselves what is involved in the ability to use written information to function in society? According to Johns (1997), literacy is much more inclusive than "reading and writing" because it is influenced by other skills and different background knowledge of content and practices:

> It (literacy) refers to strategies for understanding, discussing, organizing, and producing texts. In addition, it relates to the social context in which a discourse is produced and the roles and communities of text readers and writers. This inclusive context encompasses learning processes as well as products, form as well as content, readers' and writers' roles and purposes. /. What this term does is integrate into one concept the many and varied social, historical, and cognitive influences on readers and writers as they attempt to produce and process texts.
> (Johns 1997, 2).

Literacy is not limited to writing effectively nor to the decoding abilities of reading comprehension, but includes being able to interpret certain clues, usually considered within the socio-pragmatic dimension of language, that allow the person to function in society (Widdowson 1998). Some of these clues are asking and giving information correctly according to context, filling out a form, writing a letter, reading different kinds of printed materials such as instruction manuals, books and periodicals, or extracting quantitative information from a graph; just to mention a few of the academic skills required by university students. Many of these literacies are acquired over time in different ways and for different purposes, especially in academic settings. Thus, literacy encompasses both linguistic and socio-pragmatic dimensions of any language applied to reading, writing and speaking abilities and, consequently, literacy evolves according to the needs and circumstances of the language user.

In *Writing Science: Literacy and Discursive Power,* Halliday and Martin (1993) explore the relationships between science, language and literacy. Allan Luke, in the book introduction, states that the authors argue that

> the languages and discourses of science indeed have characteristic features that have evolved to do various forms of cognitive and semiotic work which the "common-sense" language of everyday life cannot: including, for instance, the representation of technicality and abstraction.
> (Halliday and Martin 1993, xii).

Thus, scientific literacy directly relates to the students' ability to understand scientific concepts, think scientifically, and apply a scientific perspective to their scientific and technical communications. Hence, the task of educators engaged in Scientific and Technical Writing courses should be to help tertiary education students to access the registers of disciplinary knowledge in order to be successful in their scientific academic environments. This approach will be particularly useful to introduce language learners to the special purposes of scientific writing in order to be academically literate in their L1 as well as in their L2s.

Furthermore, the growth of student and occupational mobility within the European Community is making the need to master English, as a common medium of communication at a global level, indispensable. Our engineering students enrolled in technical English courses at university have usually completed several general English subjects at secondary school but lack the literacy proficiencies required to function in an L2 academic environment. The ability to perform everyday functional literacy tasks needs to be included among the teaching goals for specific EAP

(English for Academic Purposes) and EST (English for Science and Technology) courses in order to develop communication skills, critical thinking and problem-solving strategies in the tertiary education engineering student. EAP/EST literacy portfolios can be a most useful tool for this purpose.

2. The European Language Portfolio

A European Language Portfolio (ELP) is a document in which L2 learners can record and reflect on their language learning and cultural experiences; all competence is valued, regardless whether gained inside or outside of formal education. It has both a pedagogic function to motivate, guide and support the learner in the process of learning and a reporting function to record proficiency language levels. It encourages learner self-assessment, which is usually combined with teacher assessment and external assessment by educational authorities and examination bodies. Furthermore, portfolios can be a useful tool to guide students' independent work and facilitate its evaluation following previously set learning objectives, scaled according to CEF reference levels. Taking into account the criteria of the European Credit Transfer System, in which both class-work and home-work are given academic credit, the importance of portfolios is becoming more and more evident.

According to the "European Language Portfolio: proposals for development" (Council of Europe 1997), the ELP is a tool to promote learner autonomy based on the following principles:

- The development of the language learner
- The development of the capacity for independent language learning
- Transparency and coherence in language learning programmes, and
- The clear description of language competence and qualifications in order to facilitate mobility.

ELPs are divided into three distinct parts: (i) the language passport (LP), (ii) the language biography and (iii) the dossier.

(i) LPs are records of personal language skills, L2 qualifications and significant experiences of L2 use defined in terms of proficiency levels presented in the CEF (Council of Europe 2001, 24-27). These reference levels are arranged in a conceptual grid into six broad levels giving an adequate coverage of the learning space relevant to language learners:

- Basic Users (A1, A2), which correspond to breakthrough and waystage levels
- Independent Users (B1, B2), which correspond to threshold and vantage levels, and

- Proficient Users (C1, C2), which correspond to "effective operational proficiency" and "mastery" levels.

The main aim of the resulting reference document is to assist all partners to describe the six levels of proficiency required by existing standards, in order to facilitate comparisons between different systems of qualifications and public recognition of achievement, especially in situations of student mobility (García 2003). These existing standards are arranged in a grid, referring to listening, reading, writing, and speaking skills; in this study we will only deal with those abilities that clearly relate to academic literacy.

(ii) The "language biography" encourages learners to provide a statement of their self-assessed proficiency in each L2, in reference to the CEF levels mentioned above. Both achievements and objectives are reflected in the student's language biography, together with other more informal experiences involving contacts with languages and other cultures throughout their lives. A language biography is used "to set language learning targets, monitor progress, plot the development of language skills, and record and reflect on specially important language learning and intercultural experiences" (Little 2005, 325). In order for learners to determine their self-assessed proficiency, language competence level descriptors are developed and included within the language biography section of the ELP in the form of scaled check-lists.

(iii) Finally, the "dossier" allows the learner the opportunity to select outcome materials to document and illustrate achievements recorded in the other two sections of the ELP, the language passport and the language biography. The selected pieces of work should best represent the learner's capacities and achievement in reference to the course objectives expressed in the language reference level descriptors.

To sum up, ELP models can cater for the different needs of learners according to age, learning purpose, context and background. In this chapter we shall discuss the language competence descriptors to which technical university students will refer to in their language biography. Competence descriptors are the basis for course design and learner autonomy and their content can be tailored to identify the goals and requirements of EST curricular subjects while referring to the CEF reference levels. Our engineering students at "Universidad Politécnica de Madrid" (the Polytechnic University of Madrid) would certainly benefit from a mixed-skills portfolio encompassing reading and writing abilities (Durán 1999) above all, which we shall discuss in the coming sections.

3. Basic features of an EAP/ EST literacy portfolio

As has been said at the beginning of the study, adult literacy is not limited to reading comprehension or decoding abilities, but includes being able to identify and interpret certain clues, which allow the language user to function in society. Correspondingly, the CEF adopts an action-oriented approach in so far as "it views users of a language as members of a society who have tasks to accomplish in a given set of circumstances, in a specific environment and within a particular field of action" (Council of Europe 2001, 9).

Taking these into account, our endeavour now is to define the levels of reference, tasks, specific environment and field of action of our engineering students in order to adapt the general reference levels to the teaching circumstances of our English for Science and Technology course, a compulsory 3rd year, 6 credit course within the Mining Engineering degree syllabus.

1.- Appropriate levels of reference.

In order to define the appropriate levels of reference for EST mining engineering students at UPM (Polytechnic university of Madrid), the Oxford placement Test was administered; a total of 40 students out of all those enrolled in the course took the test. Half the students were referenced at CEF B1 level and the other half were practically split between A2 and C1 (see Figure 9-1). Most students enter the mining engineering degree program with A2 or B1 levels to move on to the next levels, and only a few reach C2 mastery level of proficiency. Therefore, the main goal levels of our portfolio, which will determine class objectives, are: Independent Users (B1 and B2), which correspond to threshold and vantage levels, and Proficient User (C1), which corresponds to effective operational proficiency (see Appendix B for self assessment grid illustrating each level).

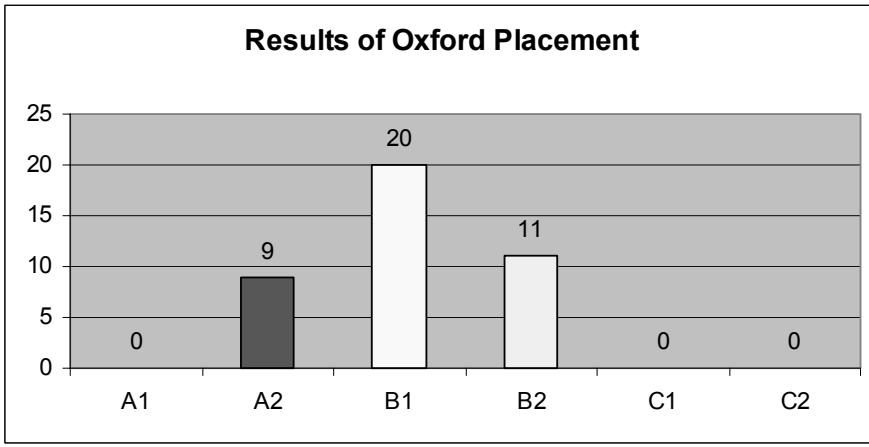

Fig. 9-1: Results of Oxford Placement Test for 3er year mining engineering students

2.- Specific environment and field of action

By looking at the mining engineering degree syllabus and at the professional perspectives of our mining engineering students, we can get a good approximation to their specific academic and professional environment. It encompasses knowledge of geology and energy resources, technical mining works, management and economics, environmental assessment, and basic computer science knowledge, among their most salient features. Thus, the range of literacies required of these students, future engineers, are related to fundamental academic skills of a scientific, technical, managerial, and linguistic nature. The mastery of these literacies, as far as EST teachers are concerned, presupposes the acceptance that scientists and engineers, as members of a knowledge society, need to communicate their combined knowledge about these matters effectively.

3.- Language skills related to academic literacy.

Language skills related to linguistic literacy comprise reading, writing and speaking in an adequate register, as well as mastering specific terminology and the strategies needed to consult sources and solve technical problems, among others. Linguistic literacy in our higher education context refers mostly to the ability to recognise different genres, to consult sources, whether in electronic or paper format; to read general scientific and technical information related to their field; to read instructions, manuals and specific papers; to interpret graphs and discuss

their information; and to write technical reports, academic essays, CVs, letters and e-mails.

Furthermore, in order to help EST students to be literate in the use of information technologies, we language teachers should include the use of the world wide web in our class activities, both for language exercises and as source of reference for authentic language material.

According to Johns (1997), by considering the needs of our technical university students, portfolios will identify strategies for developing texts across academic genres, hoping that by doing this, ELPs would provide for EST teachers and students both guidance and flexibility. The specific environment of mining engineering students relates to an academic context in the fields of all engineering professions. Thus, their ELPs should mirror everyday functional literacy tasks related to their academic and future professional contexts (Smith 1998) and the descriptors used should refer explicitly to them.

After thorough investigation into existing versions, we found that many areas particular to our teaching situation were ignored (Pierce and Úbeda 2006). Therefore, our new EAP/EST portfolio cannot be restricted to the skills and competencies described in the CEF, but it adds all the new literacies considered essential for our twenty-first-century engineers.

EST course guidelines also consider the selection of input material, editing for particular audiences, instructions to make their arguments distinct, considerations on style and register, and developing and ever-widening awareness of genre (Swales 1990; Bhatia 1993; Paltridge 1997). All these, together with the strategies required for processing discourse, have been analysed in relation to the CEF's reading and writing objectives that correspond to B1, B2 and C1 levels of proficiency, consequent with the students' assessed levels and their learning goals, as we shall explain in the coming sections.

4. Determining content and objectives for EAP/EST language portfolios

Taking the basic features of EAP literacy portfolios that we have just described into account, our next endeavour has been to develop a complete bank of EAP/EST language competence descriptors. For this purpose, the UPM research group named DISCYT is involved in a research project to define the levels of reference, tasks, specific environment and field of action of our engineering students—our target population—in order to adapt the general reference level descriptors to the specific circumstances of UPM students. Thus, we have focused on determining specific language

content in relation to the genres selected for EAP/EST portfolios; the most frequent channels of communication proper of their discourse community and the tasks involved in their proficiency; as well as the strategies needed for an effective acquisition (Durán and Roldán 2006). All these have been arranged into five categories to determine language competence at linguistic, sociolinguistic and pragmatic levels, which will help the appropriate definition of teaching objectives. Consequently, specific competence descriptors to be used by students for their self-assessment will fall under one of these categories.

We include the description of three of the categories more closely related to our literacy portfolio: Spoken production, written production and reading, leaving aside "Aural Reception" and "Working with Texts" (as they exceed the aim of this study).

CATEGORY 1: SPOKEN PRODUCTION AND INTERACTION
-Strategies: planning, compensating, monitoring and repair
-Language competencies: phonological control, sociolinguistic appropriateness, thematic development and fluency.
-Descriptor domains:
1: overall oral production
2: sustained monologue: describing experience
3: sustained monologue: making a case
4: public announcements
5: addressing audiences: oral presentations
6: spoken interaction: overall spoken interaction, formal discussion and meetings, telephoning.

CATEGORY 2: WRITTEN PRODUCTION AND INTERACTION
-Strategies: planning, monitoring and repair
-Language competence: general linguistic range and vocabulary control, grammatical accuracy, orthographic control, sociolinguistic appropriateness, figurative language use, coherence and cohesion and propositional precision.
-Descriptor domains:
1: overall written production
2: creative writing
3: reports and essays
4: instructions
5: descriptions of mechanisms & processes
6: student applications (CV, cover letter and forms)

7: abstract and research papers
8: written interaction: correspondence (letters and e-mails)
notes, messages and forms
CATEGORY 3: RECEPTION / WRITTEN
-Reading Strategies: identifying cues, scanning information, predicting and inferring
-Descriptor=domains:
1: overall reading comprehension
2: reading correspondence
3: reading for orientation
4: reading for information
5: reading instructions
6: reading reports and articles

5. Criteria for good descriptors

As we have just mentioned, the CEF descriptive scheme and the common language reference levels provide a conceptual grid that can be used as a guideline to describe new specific systems, which should all refer to the six levels mentioned above. Accordingly, all scales of language reference levels should meet certain criteria that may be summarised as follows (Council of Europe 2001, 21-22):

- They should be context-free in order to accommodate generalisable results from specific contexts, while being context-relevant. In other words, the categories used to describe what learners can do in different situations of language use must be relatable to the target contexts of use of the different groups of learners within the overall target population, i.e. they should take specific contexts into account, but they should be generalisable within such contexts. (For our research project, the target population has been Universidad Politécnica de Madrid students, but the example we develop in this article makes special reference only to 3er year Mining engineering students).
- The scale description needs to be based on theories of language competence while remaining user-friendly. This is to say that whereas the categorisation and description needs to be theoretically grounded, it must also remain accessible to practitioners from the target population. This is difficult to achieve and it has required piloting the descriptors with the students in order to test their readability and improve their wording whenever necessary. In order to motivate self-

guided autonomous learning, students should not be puzzled by complicated descriptors which are difficult to understand.

- The number of levels adopted should be objectively determined and should always refer to the six CEF levels, allowing for finer intermediate levels if they are required to show progression in particular circumstances. For example, in some contexts there may be a need for developing certain descriptors more than others, establishing finer levels within a level. Say, between levels B2 and C1, there may be a need to introduce an intermediate B2.1 or B2.2 before C1. For certain student achievements, such as "writing a given text in a clear and correct style", it may be advisable to break the descriptor up into finer and more progressive descriptors. For example "I can structure my piece of writing according to text type" and "I can decide upon style and register according to text type." Students at Universidad Politécnica need to develop certain literacies—reading and writing competences—above the middle adult average (Durán 2000). Therefore, breaking up descriptors into more progressive ones may help both self-assessment and teacher assessment.

Furthermore, according to Schneider and Lenz (2000, 47-48), descriptors of language proficiency, formulated according to the spirit of the CEF to fit into an ELP, should fulfil the following requirements:

- Positiveness – use descriptions of what the learners are able to do, as they are to serve as language acquisition objectives.
- Definiteness – describe concrete tasks and/or concrete degrees of skill in performing tasks, avoiding vagueness; that is, distinctions between levels should be real, not just dependent on replacing a qualifier "some" or "a few" with "many" or "most" without reflecting a real improvement in task proficiency level.
- Clarity – write simple syntax; that is, comprehensible without special introductions.
- Brevity – short; they should not span more than about twenty five words.
- Independence – their interpretation should not depend on other descriptors but should allow for clear yes/no decisions ("yes, I can do this"). This kind of independence may be considered as a signal that the descriptor could serve as an objective or learning outcome in itself.

Checklists such as the ones developed in the Swiss National Science Foundation Project (see bibliography for web reference) are good examples of this. In regard to definiteness, scales of descriptors or checklists work best when the descriptors contain not only what the

learners can do but also how well they can do it. That is, they include both the description of the communication skill as well as its level of proficiency. Gradual references should be made to thematic areas (from everyday familiar matters to more abstract open topics), to vocabulary range (from basic high frequency words to a wide range of lexical accuracy), to fluency (from much pausing to a natural effortless style, when referring to speaking) and to the length and complexity of the task. As we said above, the introduction of a simple modifier that does not reflect a real improvement in task proficiency level is not enough. Later on we will comment on some examples of literacy outcome descriptors.

6. Determining EAP/EST descriptors: Steps followed

Since a Language Portfolio is an instrument designed to promote mobility, we have tried to avoid subjectivity in favour of validity when defining descriptors that are meant to be interpreted by other European colleagues.

The CEF (2001) presents holistic descriptors that can be deconstructed into shorter descriptors for the desired categories, adapting them to more specific users' needs, as we have already said. It presupposes that descriptions of a particular degree of skill belong to a particular level rather than another. This implies a form of scaling that must be consistently applied, although categories' boundaries are sometimes fuzzy. For instance, an A2 level objective in a particular skill may not be attained by a particular student at the same time as the other A2 objectives, but later on as he/she reaches other B1 level objectives. So, in order to calibrate communicative competence descriptors we have to guide ourselves by the performance of the majority of students, forgetting about punctual behaviours.

The CEF (2001, 207) names three available methods to assign language proficiency to the distinct six levels: intuitive, qualitative and quantitative. Our so-called ACPEL project (see end note) has combined the three approaches, as we consider them complementary. Qualitative methods, including statistical analysis, require the previous intuitive formulation of language goals, based on teacher experience: "Quantitative methods should quantify qualitatively pre-tested material, and will require intuitive interpretation of results" (CEF 2001, 207). Thus, in the same way the CEF reference levels are the result of the combination of the three approaches, our specific EAP/EST passport has also applied the three methods for the definition and calibration of our descriptors, according to the following steps:

- Consultation of existing scales (CEF and Swiss ELP mostly), and selection of the most relevant descriptors for our EAP context,
- Analysis of typical samples of student performance in academic and professional related skills, as well as curricular programmes, to determine specific objectives related to academic genres and skills not represented in the existing scales,
- Definition of new descriptors by two or three expert teachers involved in this project, following the "requirements of good descriptors" described above (Schneider and Lenz 2000, 47-48). Teachers assumed the writing of descriptors according to one or two of the five categories and domains described above more in tune with the subjects they teach, and assigned them a CEF reference level.
- Draft revision by two or three other researchers involved in the project, different from the first authors and raters, in order to refine the wording and the levels of the descriptors. Suggested improvements were discussed along several meetings of the entire DISCYT research group in order to produce the final draft.
- Five check-lists of 50 to 85 items were developed, corresponding to the five categories: spoken production and interaction; written production and interaction; reception-spoken; reception-written; and working with oral and written texts. The descriptors to be piloted range between A2 and C1 levels of reference, in correspondence with the placement level of our UPM engineering students.
- Quantitative statistical analysis is underway. It has taken us over one year to have the final drafts ready for piloting with the students, in the form of check-lists. At present we are building our database to fit into a multi-dimensional table so that we can obtain significant differences between the expected and the actual results of the scaled descriptors.

With the above-mentioned specific environment of our engineering students in mind, and the criteria established by the research group, we have redefined the descriptors so we can count with a more precise set, suitable for the concrete specific nature of our EAP/EST portfolio.

7. An example of redefinition of reference level descriptor for an EAP/EST context

Let us consider the CEF descriptors in Appendix B and redefine them into finer reading, writing and speaking specific language objectives, to suit our English for Science and Technology course for mining engineering students. Students will be told to have them present so they are aware of what they can do and guide their own progress. By the end of

the 60-hour semester course, students should be able to assess their language acquisition level and contrast it with the teacher's assessment.

Table 9-1 presents a brief selection of some of the descriptors developed for the course.

Level	Communicative Competence Descriptors
	Written Reception /Reading
B1	I can understand clearly written straightforward instructions (e.g., for using a piece of equipment, for answering questions in an exam).
B1.1	I can understand the most important information in simple informative texts, such as web pages and brochures relating to my professional field.
B1.2	I can assess a writer's purpose and attitude in articles and web pages.
B2.2	I can understand articles on specialized topics occasionally using a dictionary and other appropriate reference resources to check specific vocabulary.
C1	I can apply textual, contextual, grammatical and lexical cues to achieve comprehension of a text on an unfamiliar topic and infer meaning.
C1.2	I can understand in detail highly specialized texts and complex factual documents in my academic or professional field, such as technical manuals, project descriptions, legal contracts and research reports.
	Spoken production
A2	I can give a short basic presentation on a familiar, technical subject speaking from notes or from a written text.
B1	I can give a spontaneous, clear description of an issue within my field of interest, though with some errors influenced by mother tongue.
B2.1	I can structure and adapt a technical discussion to support my arguments fluently.
B2.2	I can give a clear, systematically developed presentation (of a project or a report), enhanced by visual aids to transmit significant

	points and relevant details.
C1	I can give oral reports about technical subjects, sequencing and developing points of particular interest, and ending with appropriate conclusions.
	Written Production
A2.1	I can fill out a simple application form or questionnaire giving personal, educational and experience references.
A2.2	I can write simple instructions on familiar topics.
B1.1	I can write short simple basic descriptions of natural processes related to my field.
B2.1	I can clearly and correctly express my availability for an interview in my covering letter.
B2.	I can write standard formal letters requesting or communicating relevant information, with appropriate use of register and conventions.
C1	I can write clear, well-structured texts on complex subjects related to my academic field, supporting my arguments, giving relevant examples and rounding off with an appropriate conclusion.

Table 9-1: Descriptors for the course

8. Conclusion

We have tried to highlight that portfolios can play an important part in managing the goals of an EST programme within the European higher space of education, as they can help students to move in their reflections about text structure, the social forces influencing texts, especially the discourse community, and about how their strategies must develop towards meeting different kinds of rhetorical situations. Tertiary education EST faculty can also benefit from portfolios as they contribute to updating their curricular planning based on real students' needs. Furthermore, taking into account the criteria of the European Credit Transfer System, in which both class-work and home-work are given academic credit, the importance of portfolios will become more and more evident as they are a tool to guide a good part of the student's autonomous learning process.

We have included a description of how our research group went about developing a bank of EAP/EST descriptors that can serve to design a literacy portfolio tailored to a specific course. Our goal has been to

illustrate, by way of an example, how to define the levels of reference, tasks, specific environment and field of action of Language Portfolios addressed to engineering students. We have provided instances of how to adapt the general reference levels to our specific teaching circumstances.

We hope that by doing so, we have contributed a reference document that will help other ELP developers to describe the levels of proficiency required by referring CEF existing standards. This will also facilitate comparison between different systems of qualifications and public recognition of achievement among European Technical Universities, where, as in the business world, specialised communication constitutes a chief link in the chain of competencies.

Notes

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APPENDIX A

1. Activity Register for Group E

1. Name the type of product / service / resort being advertised (do not give just its name, but explain what it is in one sentence). 2. Choose three texts and explain, in your own words (4-6 sentences), two main features that make them attractive for the tourist (in terms of money, beauty, leisure, etc.). 3. Explain four main differences (4-6 sentences) among the ads in terms of contextual features that make them more or less attractive (e.g., pictures and links used, type of letter, size of texts, color, etc). 4. Give three keywords with which you could identify each ad (3 x 6 = 18 keywords), especially related to the topic of the ad.

2. Reading Comprehension Exercise for Groups E y C

Topics

1. Match the texts above (A, B and C) with one of the following topics: Hotels and lodging, Special travel deals, Nature escapes, Routes and travel, Historic and Heritage sites, Museum galleries.

Responses: A = Hotels and lodging / B = Nature escapes / C = Historic sites

Content

1. Identify the following ideas in the text(s) by underlining the sentences where the idea is conveyed (they may appear in more than one text):

a. Main attraction of resort
b. Ease of accessibility to location
c. Low cost of transport
d. Historical appeal
e. Great views
f. Information on environmental protection

Responses: a: texts A, B, C / b: A and B / c: A / d: A and C / e: A, B, C / f: B

Context

2. Specify only one text where the following is a salient feature:
Picture and text as equally relevant elements to describe the place
Picture used as a central means of giving appealing information
Picture used as a complement to the text for describing setting

Responses: a: text B / b: A / c: C

3. Specify only one text where the following is perceived:
a. Longer sentences
b. Shorter sentences
c. More paragraphs

Responses: a: text C / b: A / c: B

4. Specify only one text where the following is a salient feature:
a. Letter type and size in any part of the text to draw attention
b. Reference to access and service on the internet
c. Reference to other information sources

Responses: a: text B / b: A / c: C

Function

5. Specify only one text in which the aim is
a. to promote lodging
b. to promote tours
c. to promote both lodging and tours

Responses: a: text A / b: C / c: B

6. Specify only one text by which the reader may feel motivated to seek
a. peace and quiet
b. adventure and thrills
c. cultural experiences

Responses: a: text A / b: B / c: C

Lexis

7. Identify keywords of different topics by underlining them:
a. Three about Nature
b. Three about Monuments and Art
c. Three about Hotels and accommodation

Sample Responses: a: text A (ej., country) y B (foliage) / b: C (chapel) / c: A (luxury) y B (hostels)

8. Identify significant vocabulary constructions by underling them:
a. Three about money and prices
b. Three about fun activities
c. Three about artistic features

Sample Responses: a: text A (e.g., luxury rooms) y B (special deals) / b: A (horse riding) y B (hiking trails) / c: A (refined art) y C (modern style)

9. Identify significant vocabulary constructions by underlining them:
a. Three indicating tourist actions or motions
b. Three indicating location or places
c. Three indicating sensations or feelings

Sample Responses: a: text A (e.g., kick back) y B (away from) / b: A (located in) y C (tucked in the corner) / c: A (feel + like) y B (feel + way of life)

APPENDIX B

Communicative competence CEF reference levels B1, B2, and C1:
Self-assessment grid

		B1 level	B 2 level	C 1 level
UNDERSTANDIG	Written reception: Reading	I can understand texts that consist mainly of high frequency everyday or job-related language. I can understand the description of events, feelings and wishes in personal letters.	I can read articles and reports concerned with contemporary problems in which the writers adopt particular attitudes or viewpoints. I can understand contemporary prose.	I can understand long and complex factual texts, appreciating distinctions of style. I can understand specialised articles and longer technical instructions, even when they do not relate to my field.
SPEAKING	Spoken production	I can connect phrases in a simple way in order to describe experiences and events, my dreams, hopes and ambitions. I can briefly give reasons and explanations for opinions and plans. I can narrate a story or relate the plot of a book or film and describe my reactions	I can present clear, detailed descriptions on a wide range of subjects related to my field of interest. I can explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.	I can present clear, detailed descriptions of complex subjects integrating sub-themes, developing particular points and rounding off with an appropriate conclusion.

WRITING	Written production	I can write simple connected text on topics which are familiar or of a personal interest. I can write personal letters describing experiences and impressions.	I can write clear, detailed text on a wide range of subjects related to my interests. I can write an essay or report, passing on information or giving reasons in support of or against a particular point of view. I can write letters highlighting the personal significance of events and experiences.	I can write clear, well structured text, expressing points of view at some length. I can write about complex subjects in a letter, an essay or a report. I can select style appropriate to the reader in mind.

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