Estudio De Las Necesidades De Formación Lingüística Para La Docencia Universitaria En Inglés

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Resumen

Son muchas las cuestiones aún por investigar en la cada vez más frecuente práctica de impartir disciplinas no lingüísticas en inglés en todos los niveles educativos. Este trabajo se centra en el discurso del profesor universitario en titulaciones bilingües. Se analizan los marcadores discursivos y las funciones académicas de definición, explicación y formulación de hipótesis en seis clases de la titulación bilingüe de la Escuela universitaria de informática de Segovia. El objetivo es doble. Primero, una caracterización del discurso docente en las asignaturas de contenido en inglés. Esta caracterización sirve de análisis de necesidades para diseñar un curso de formación lingüística para los profesores, segundo objetivo del trabajo. La investigación se enmarca así en el área de Didáctica de la lengua y la Literatura por su estudio de la lengua hablada en el aula y por el diseño de cinco secuencias didácticas para la enseñanza de la lengua oral formal. Por otra parte, las taxonomías de marcadores discursivos y de funciones académicas diseñadas para la investigación son una aportación al ámbito del análisis del discurso en el aula.

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Abstract

Teaching non linguistic disciplines through English is becoming a common practice at all educational levels. However, many questions remain unsolved. This paper centers on the description of lecturers discourse in bilingual degrees. Discourse markers and the academic functions of definition, explanation and hypothesis expression are analyzed in six lectures from the bilingual degree at Escuela universitaria de informática in Segovia. The analysis aims, firstly, to identify the main features of teaching discourse in these contexts. This may serve as a needs analysis for the design of a language course for content teachers. The study of the language spoken in the classroom and the proposal of five didactic sequences for the teaching of formal oral language frames this research within the area of language and literature didactics. On the other hand, the taxonomies of discourse markers and academic linguistic functions designed *ad hoc* for the study are a contribution to the area of classroom discourse analysis.

Introduction

The European Higher Education Area (EHEA), the internationalization of universities and some European linguistic policies are promoting the teaching of

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non linguistic disciplines in foreign language at all educational levels. This is known as CLIL (Content and Language Integrated Learning) in English and AICLE (Aprendizaje Integrado de Contenidos y Lengua Extranjera) in Spanish. The speed of development and the expansion of these practices have no precedents (Dafouz & Guerrini, 2009). This celerity of implementation implies praxis outpacing theory. Therefore CLIL conceptual and theoretical frameworks are still under construction and a "theory-lessness" (Dalton-Puffer, 2007: 10) permeates this trend. Heterogeneity in the practices is, in consequence, another relevant feature. However, some common elements can be identified (Coyle, Hood & Marsh, 2010; Dalton-Puffer, 2011) for a systematic and theory grounded approach to CLIL linguistic and methodological features.

In the middle of these new bilingual scenarios, one main issue which concerns both CLIL theorists and practitioners remains unsolved: CLIL teacher training. This concern is also considered a key factor for CLIL implementation and success. As Coyle *et al.* state "the key to future capacity building and sustainability is teacher education" (2010: 161). Debate continues about the required competences for these teachers. There is agreement in two main dimensions of education needed to teach in and through a second language: linguistic education and methodological education. The research results summarized in this paper are part of a doctoral thesis (Martín del Pozo, 2014b) which attempts to provide some knowledge about the first of such dimensions: the linguistic education of CLIL teachers.

State of the art

So far the linguistic competence of CLIL lecturers has been described in terms of the Common European Framework of Reference (CEFR), a scale which has proven to serve for homogeneity in the description of general

language competences in Europe. Therefore, discussion has focused on language level and language qualifications. For example, Lasagabaster and Ruiz de Zarobe (2010, p. 288) establish C1 as the minimum for both secondary and tertiary levels, even though a lower level may be allowed by official legislation. However, it is advisable to consider the warning that a teacher may master general language, the specific language of their subject but may not be competent in classroom language. Llinares and Whittaker (2011) found that secondary school teachers in Madrid lacked metalinguistic awareness, in spite of their high English proficiency in the language of their subject area. This deficiency seemed to be a hindrance for assisting students with the language of the specific domain. One of the implications derived from this study is that high language competence is not enough for an efficient teaching of contents.

The research findings summarized in this paper suggest that the debate would be more productive if attention focused on the type of language required for successful CLIL rather than concentrating on language qualifications. In order to determine what type of language is used and required in CLIL, an increasing number of researchers are approaching classroom discourse in CLIL and immersion contexts (Dafouz & Nuñez, 2010; Dalton-Puffer, 2007; Francomacaro, 2011; Llinares, Morton & Whittaker, 2011; Lyster, 2007, Sanchez García, 2010, *inter alia*). In addition, there are numerous studies related to other contexts where the student is not a native speaker of the language of instruction. Findings reveal what features of lecturer´s discourses seem to have a positive impact on lecture understanding and whose absence, on the contrary, hindrance oral comprehension in academic context (Eslami & Eslami- Rasekh, 2007; Flowerdew, 1994; Flowerdew & Tauroza, 1995; Fortanet 2004; Morell, 2004; Reza, Khodabakhshzade & Shirvan, 2012, *inter alia*).

Our research departs from previous findings in both teachers´ discourse studies and listening comprehension research in second language academic

contexts. One of the aims of merging both research lines is to obtain a deeper knowledge of the Cognitive Academic Linguistic Proficiency (CALP). This linguistic competence is exclusive of classroom discourse and indispensable for the learning of academic content through a foreign language (Cummins, 1984). The elements which constitute CALP remain insufficiently specified.

1. Methodology

1.1. Context

The data for my study were collected at *Escuela Universitaria de Informática* (*Universidad de Valladolid, Campus Segovia, Spain*) where teaching through English was an optional practice from 2006 to 2012 (Martín del Pozo, 2008a, 2008b,). In this context `The shift towards L2 medium education in English does not correlate with the introduction of CLIL´ (Marsh & Laitinanen, 2005: 2). This means, there are not explicit language objectives neither at institutional nor at individual level at the university. Nonetheless, it is expected that students' linguistic competence will benefit from the bilingual program *Ingeniero técnico de informática de gestión*.

The researcher´s connection with the *Escuela Universitaria de Informática* dates from 2003, when she taught English for computing for one academic year. In 2006, when the institution was about to start this program, she was asked for some advice due to her research interest in English for Specific Purposes and English for Academic Purposes. During the first two years of the program, she provided some training to the lecturers involved, mainly conversation and academic English lessons. This teaching was based on experience and intuition. The systematic approach to the lecturers´ discourses reported in this paper means that future teaching could be based on empirical research evidence.

The subjects taught through English at *Escuela de Informática* range from Economics, Operating systems, software engineering, Maths, Physics, Information Systems, Programming and other related knowledge areas. The attitudes and perceptions of students and lecturers for the first two years of the experience were reported in Martin del Pozo (2008a y b) along with some narratives of lecturers' difficulties, strategies and achievements.

1.2. Data collection

The main instrument used for the data collection is a corpus of six lectures which were videotaped and transcribed. To ensure the validity of the sample, the subjects were selected on the basis of gender, subject and more than two years' experience teaching through English. Six lecturers were videotaped during the delivery of a sample lecture. The transcriptions of the verbal language formed the corpus. Relevant features of this corpus are specified in table 1:

Table 1.

Corpus description

Lecturer	Topic	Recording time (minutes)	Number of words	EMI experience (years)
Lecturer 1	Processes in operating system	31	2,580	2
Lecturer 2	Information representation in Quantum arithmetic	27	2,140	5
Lecturer 3	Consumer preferences	40	3,300	3
Lecturer 4	Graph theory	51	2,650	5
Lecturer 5	Basic concepts of mathematics	22	2,273	4
Lecturer 6	Gauss's Theorem and applications	36	3,470	4
Total	Number of lectures: 6	207 minutes	16, 413 words	

1.3. Research questions

The following specific research questions attempt to fulfil the aim of describing lecturer's discourses and identifying linguistic training needs.

1. How many occurrences of the discourse markers are there in the corpus?
2. What is the linguistic form of these discourse markers
3. How many occurrences of these academic functions are there in the corpus?
4. What is the linguistic form of these academic functions?
5. Is there any signalling language or metalanguage around them?

2. Methodology

The used methodology draws on case study, qualitative methodology and the specific areas of research in Language Didactics. As a case study, it is expected that knowledge of the particular (features of the discourse of six lecturers teaching through English in this specific context) will provide knowledge about the general (features of any lecturer teaching a non linguistic discipline through English). Data are qualitative; therefore categories need to be identified. The linguistic analysis of these date required the design of taxonomies based on previous models.

1. For the analysis of discourse makers (Young, 1994; Dafouz & Nuñez 2010),

2. For the analysis of the three academic functions: definition (Flowerdew, 1992; Dalton-Puffer, 2007), explanation (Brown & Atkins, 2006) and hypothesis expression (Dalton-Puffer, 2007).

However, the previous taxonomies result insufficient. Therefore, new categories were added. Thus, the taxonomies used include categories derived from the corpus analysis and which had not been considered by the preceding ones. Figures 1 and 2 show the taxonomies and some of the examples found in the corpus.

	Category		Function	Examples
Discourse structuring phase	Openers		Indicate the beginning of class/section	*In this lesson we will talk about*
	Sequencers		Mark a position within a series	*first of all, then*
	Topicalizer	Verbal	Indicate the introduction of a new topic	*Another possible model is*
		non verbal	introduction of a new topic without verbal sign	*Change slide in silence*
		referring to visuals	introduction of a new topic by referring to visual support	*Here we have*
	Prospective markers		Refer to future topics/ sections (present class or other)	*we are going to see later*
	Retrospective markers		Refer to past topics or sections (present class or other)	*as you have heard*
Interaction phase	**questions**	Referential	Teacher knows the answer	*What is the result of ?*
		Display	Teacher does not know the answer	*What do you prefer?*
		Rhetorical	Teacher ask and answers	*What does this mean?*
		Indirect	For the students to react	*Could you raise your hand if you agree?*
	Commentaries		Addressing the students directly (you) Inclusive expressions (we)	*as you can see Let us consider*
	Apologizing		Apologizing for deficiencies	*Sorry…*
	Contextual comments		Refer to aspects related to context	*Temperature in any point of this room.*
Conclusion Phase	Closing markers		Formal closing of class/section	*I finish the theoretical lecture*
	Recapitulation markers		*Sumarize main ideas of a class/section*	*We have reflected that*
	Prospective markers		*Refer to topics of future classes*	*in the next lesson we will*
	Retrospective markers		*Refer to topics previously covered*	*Here I talked about*

Figure 1: Discourse markers. Analysis grid developed from these taxonomies and some examples found in the corpus

Academic function of definition (Flowerdew, 1992)	
Type	example
Formal Hyperonym + differentia	The heap is the memory segment of a process which allocates dynamic variables
Semi-formal No hyperonym	The Process Scheduling is how the operating system organize the execution of different processes in the system
Non-formal Substitutiom synonym, parafrasing	the basic definition of a process is only a program in execution,
Ostensive Visual reference	This is a binomial
Academic function of explanation (Brown, 2006)	
Explanation what (descriptive)	the objectives of this talk will be to introduce the notion of a process - a program in execution, ok?, which forms the basis of all computation that makes a computer system
Explanation how (process)	A process comes before and input/output operation for example, OK ? Then until this operation will be performed the process has not continue its execution and then pass to this state, the waiting state. It is waiting until the I/O operation concludes or terminates
Explanation why (reason giving)	It is a queue because it follows a FIFO strategy, first in, first out , first out,
Academic function of hypothesis expression	
Real conditional	if we write these two situations we´ll have a simple graph without loops and without edges
Possible	If so, if so, if an indifference curve were positive sloped, basket A and basket B could lay on the same indifference curve

Figure 2: Academic Functions. Analysis grid developed from these taxonomies and some examples found in the corpus

Tough it will be mainly the qualitative analysis of the transcriptions what will provide insights into the main features of lecturers´ discourse and identifies training needs, quantitative information about the frequencies' of these categories will also be considered.

To answer the five questions, the opening move in the research process was to identify what constitutes a discourse marker, a definition, an explanation and an expression of hypothesis. Once these markers and functions were identified, the analysis of each one of them was undertaken following the described taxonomies. Main relevant findings are now summarized.

3. Findings and pedagogical implications

3.1. Findings

Together these results provide important insights into the features of Spanish lecturers using English to teach content subjects. In addition, the findings answer the five research questions. As already said in the methodology section, we will make use of qualitative and quantitative information.

Regarding discourse markers, Figure 2 shows the prevalence of these markers to structure lectures. The frequencies and categories in the lecturers´ discourses provide useful information about individual linguistic needs. However, the comment and discussion in detail is far beyond the extension and scope of the present paper, which only attempts to provide a panoramic view of CLIL classrooms as valid contexts for educational research.
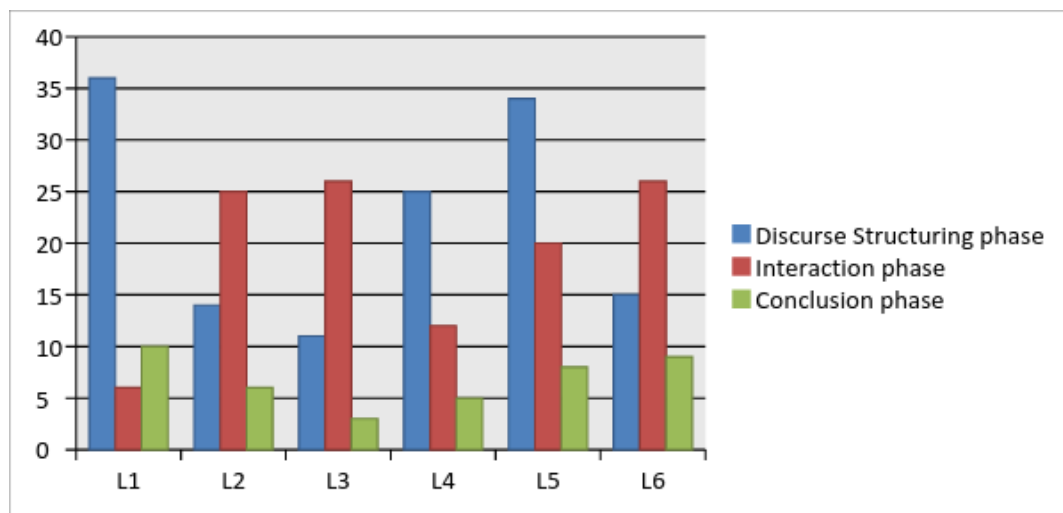

Figura 3. Distribución del uso de marcadores discursivos por profesor en cada fase

As concerns the qualitative features of the investigated discourse markers include: a lack of explicit signalling of phase transition; poor stylistic variety in this signalling; an interactional and conversational teaching style with impersonal forms outnumbering personal ones; multimodality, that is use of visual elements to support talk but without any explicit verbal reference to them.

As regards academic functions, results show a significant explicit use of them and certain presence of signalling metalanguage. In spite of this, the linguistic form is relatively basic. Figure 4 shows the distribution per lecturer.
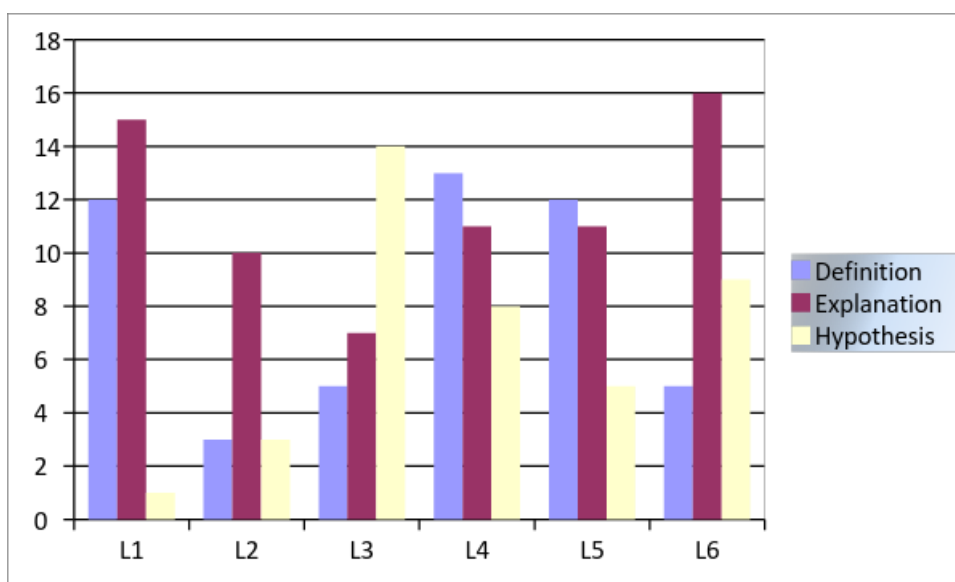

Figure 4. Distribution of academic functions per lecturer.

3.2. Pedagogical implications

The pedagogical implications derived from the findings could be grouped into two categories: linguistic needs regarding the particular investigated elements, that is the discourse markers and the academic functions, a more general category which comprehends linguistic needs derived from global features of lecturer discourse.

The required training derived from the analysis can be summarized as follows:

1. Awareness of the importance of signalling lecture phases, of interactivity and of the use of visual support without detriment of the verbal language, so that comprehension is facilitated to students.
2. Linguist tools to signal lecture phases, linguistic resources to increase interactivity and to efficiently refer to visual support.
3. Awareness of the types of academic functions, of their importance and of the assistance that metalanguage could provide.
4. Stylistic variety and more complex structures.

Figure 5 provides a more detailed specification of the needs and implications and the features of the discourse in the investigated lecturers.

Features of the six Spanish EMI lecturers investigated	Linguistic needs/ Pedagogical implications
Abundance of inclusive forms (*we, our; very low frequency of* impersonal forms.	1. Reinforce the production of impersonal structures
Examples of good discursive, teaching and communicative practices	Awareness, strengthen them, linguistic tools
Academic function of definition	2. Awareness of the different types 3. Awareness of the facilitator role of metalanguage and of hyperonyms 4. Stylistic variety
Academic function of explanation	5. Awareness of the facilitator role of metalanguage 6. Stylistic variety of nexus and signalling nouns
Academic function of hypothesis expression	7. Awareness of importance 8. Complex structures

Figure 5. Summary of findings and pedagogical implications

3.3 Pedagogical intervention

This study aims to be a reactive analysis. The aim is to improve both the teaching practice of the CLIL lecturers and of those training them. Accordingly the study joins theory and practice by providing an instrument of didactic intervention. Dalton-Puffer (2007: 257) asserts that research results generated from Applied Linguistics should assist in the resolution of real classroom problems. Thus, the findings from our data and the theoretical foundations presented in the literature review are applied for the design of the instrument of didactic intervention for teacher training. This course consists of five didactic sequences which aim to draw together the aspects and advantages of a genre approach to lecture. With that purpose, the intervention highlights the explicit teaching of the investigated elements which make lecture and academic genre: discourse makers and the three observed academic functions. Besides, the instrument is intended for another of the perceived needs: language awareness about how the different disciplines use their specialized language and academic language for knowledge construction and communication.

Conclusion

Most of the CLIL research to date has tended to focus on the product on CLIL/EMI instruction (language learning gains) rather than in the process of teaching and learning. In a modest attempt to fill this research lacunae this paper has approached one of the elements of the process: lecturer´s discourse. The elements in this process could provide valuable insights of linguistic and didactic variables which could be targeted by teacher trainers and course designers (Martín del Pozo, 2013).

We consider this research offers three main contributions to the field of bilingual education. The first of them are the findings in the investigated lecturers. Though they are very similar to those found in parallel and comparable educational contexts (Dafouz & Nuñez, 2010; Dalton-Puffer, 2007), the results themselves are a contribution in the sense that they provide an insight into the discursive features (Martín del Pozo, 2015).

We suggest that the obtained results recall one of the main advantages of corpus based research: `We can claim with some confidence that showing what does not occur, negative evidence if you wish, is one of the great benefits of a corpora approach, especially when we consider the pedagogical implications of these dispreferences´ (Swales & Malczewski, 2001: 161). Pointing at `what does not occur´ will provide dimensions of CLIL lecturers´ language competence which require reinforcement.

The proposed taxonomies (figures 1 and 2) for the analysis of lecturer's discourse are a second contribution (Martín del Pozo, 2014a). These taxonomies merge categories from previous studies and categories driven from this corpus. The taxonomies could be valuable for a systematic observation of any other content lecturer teaching through English.

A third contribution is the course designed as a didactic intervention. These five didactic sequences target common shared linguistic needs for any university lecturer considering teaching through English.

Finally, the conclusions of this research endorse the convenience of a more direct focus on language form, of the need of explicit linguistic objectives to trigger Cognitive Academic Language Proficiency development and of raising lecturers´ awareness about how language is used in the different disciplines for content transmission and to assist students in knowledge construction.

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