

# Linguistic and sociolinguistic factors that influence the detection, implantation and circulation of natural terminology in academic uses of Basque

Igone Zabala<sup>1</sup>, Itziar San Martin<sup>2</sup> & Mikel Lersundi<sup>3</sup>

## Abstract

Nowadays the Basque language is used quite extensively within university courses. 46.72 % of students study their degree completely or partially in Basque. The use of Basque as a vehicular language within university courses will determine to a large extent the future specialists' knowledge and the adequate use of terminology, and it is definitely an option that favors and helps the use of the language in professional domains. Consequently, the natural development and self-regulation of the terminology carried out in university classrooms cannot be disregarded. This article describes the factors that hinder the description, circulation and fixation of terminology used in university teaching. It describes the motivation for the Weaving Terminology Networks (TSE) project, whose aim is precisely to compensate for those hindering factors: the lack of fluid networks among experts and the inaccessibility of the texts used in academic communication. The corpus we have created in the TSE program, as well as the opinions of the participant experts that have been collected in forums and seminars have enabled us to detect other difficulties related to the language policy of the university system that one might consider as prescriptive and interventionist.

## Keywords

Spontaneous neonymy, natural self-regulation of terminology, Basque academic registers

## 1. Introduction

The aim of this paper is to evaluate the language policy of the University of the Basque Country (UPV/EHU). It describes the achievements with respect to the status and corpus planning, and concludes that there are some deficiencies in the corpus planning that may obstruct the circulation and fixation of natural terminology in university level academic registers in Basque. Some of these factors are the result of the current sociolinguistic situation of Basque, but

---

<sup>1</sup> University of the Basque Country (UPV/EHU), [igone.zabala@ehu.es](mailto:igone.zabala@ehu.es)

<sup>2</sup> University of the Basque Country (UPV/EHU), [itziar.sanmartin@ehu.es](mailto:itziar.sanmartin@ehu.es)

<sup>3</sup> University of the Basque Country (UPV/EHU), [mikel.lersundi@ehu.es](mailto:mikel.lersundi@ehu.es)

some others are the consequences of intervention by language standardizing and correcting agents.

Basque is a minority language and its standardization process started in the late 1960s. Its official status in 1982 brought about the extension of the language to formal contexts such as education, administration and mass media. The process of revitalization of Basque has been quite successful: the sociolinguistic inquiries since 1991 have shown a constant growth in the number of bilingual speakers. The extension of Basque to academic contexts has been decisive in the revitalization of the language. The fact that at university level most majors are offered in Basque shows that a real use of the language exists in all academic specialized fields. University teachers pass on specialized knowledge of the area to the students that intend to become part of the experts' community. The existence of academic communication between teachers and students suggests that there is a natural development of the specialized registers in the different areas. However, since specialized knowledge is developed and fixed in international discourse communities that employ English or other major world languages, communication in Basque among teachers in an area is not as fluid as among teachers and students. This makes the circulation and fixation of terminology more difficult.

The intervention carried out by language standardizing and correcting agents does not involve planned systematic terminology work: interventions are mostly non-systematic and the natural lexical updating that occurs in university classrooms is ignored. Moreover, the interventions depend excessively on official terminology and on the general normative dictionary (*Hiztegi Batua*). On the other hand, planned official terminology and general and specialized dictionaries blindly extrapolate the decisions of the normative general dictionary of Euskaltzaindia (Academy of the Basque Language) to specialized entries, which sometimes involves a setback in the lexicalization of terms that are well-established in usage. In our view, these attitudes are related to the fact that the process of elaboration of specialized registers in Basque occurs simultaneously with the standardization of the general language. Thus, the linguistic control over academic texts and dictionaries sometimes mixes the aims and criteria of the standardization of the general language and those of the functional elaboration of specialized registers (Elordui & Zabala, 2009): the former implies the reduction of dialectal variation whereas the latter should seek the promotion of functional variation.

The project *Terminologia Sareak Ebunduz* project (Weaving Terminology Networks, hereafter TSE) was specifically designed to overcome some of the problems described above. It started in the University of the Basque Country (UPV/EHU) in 2008 and its main aim is to make the texts and the terminology employed by teachers visible for other experts and for linguists (Zabala et al., 2011). It allows us to access the experts' teaching materials and the terminology contained in them. Besides, the seminars and forums in which the teachers

have participated enable linguists to get first-hand information about the experts' opinions and attitudes about terminology. All these elements (texts and opinions) are essential considering the theoretical assumptions we are making in our work about how semantic categories are conceived by the experts, how they activate the specialized value of lexical units and how terms circulate across discourse communities. The basic idea we are assuming, which is shared by all new approaches to terminology, is that real terminology can only be studied in discourse. Thus, real texts and the opinion of the experts themselves are central to any study about real terminology. More specifically, we assume that the specialized value of lexical units is activated by experts in specialized uses of language (Cabr , 1999, 2001). We also assume that understanding the circulation of terms among specialists, their reactions with respect to neologisms, and their resistance to official terminology requires a socioterminological approach, which focuses in the implantation of terms in discourse rather than in their standardization (Gambier, 1987: 320).<sup>4</sup> Hence, real terminology can only be studied in discourse: «Texts provide data on how particular authors understand elements of the world, how they understand the existing lexical items which serve to communicate about these elements of the world and how they may be brought to the creation of new lexical elements» (Temmerman, 2000 : 40).

The new approaches to terminology, whose assumptions we have adopted in this work, have shown that terminology serves two different purposes: a strictly representational function of specialized knowledge, and the function of communication, development and transfer of knowledge (Cabr , 1999 : 40). In the representational role, terminology is basically symbolic, and it is mainly univocal. In contrast, in the communicational function, terminology participates in the variation that is intrinsic to natural languages. This differentiation in the functions of terminology leads us to a distinction between descriptive and prescriptive activity. Any study related to the communicative function of terminology must necessarily have a descriptive starting point (Cabr , 2001 : 27). The so-called General Theory of Terminology (TGT) (W ster, 1979) was conceived as a contribution to communicational univocity and it is effective in prescriptive and strongly structured contexts in which univocal communication is prioritized, such as in international standardization, documentation, and in artificial intelligence tasks. In contrast, in situations involving natural and social communication tasks, such as the development of minorized languages, a communicational approach is required (Cabr , 1998 :12, 2001: 27). The new approaches to terminology distinguish between standardization and normalization of terminology. Whereas the former turns a specific reference form into a norm, normalization refers to making a form normal, usual or

---

<sup>4</sup>This approach by Gambier was among the perspectives that led to the development of the so called Socioterminology. Some of the works that can be placed within this framework are: Corbeil (1988), Boulanger (1991), Guespin (1993), Gaudin (1993), Auger (1999), Quirion (2003).

habitual, and it may either refer to the intervention of an organization in order to establish a preference of certain forms over others or to the fixation of certain variants through self-regulation (Cabr , 2003). Thus, in contexts of natural communication, the forms that are normalized by institutions (official terminology) constitute just one (but not the only) of the variants that appear in specialized discourse: the adequacy of forms or denominations has a more central role than the correction or normalization of forms (Cabr , 2002).

Thus, these theoretical assumptions carry some methodological implications concerning languages in the process of development and elaboration, which we have adopted in the TSE project:

- Any normalizing initiative of terminology should be based on a previous description of real usage by specialists.
- Any normalizing initiative whose aim is to contribute to the development and elaboration of a language that is in the process of normalization must take into account the communicative function of terminology and its intrinsic functional variation.
- In a language in the process of revitalization and elaboration, disregarding the experts' real use of terminology may hinder its natural development and self-regulation carried out in the experts' discourse communities.
- The terminology used by experts in a language in the process of development and elaboration must be described and analyzed from a dynamic and diachronic perspective, so as to identify the trends that best respond to the development.

This paper has 4 sections. Section 2 describes the process of revitalization of Basque from the beginning of the standardization in 1968 and the creation of the Basque Autonomous Government in 1978. Section 3 is concerned with the general expansion of Basque to academic fields and particularly to the university. It describes the achievements and deficiencies of the language policy of the public University of the Basque Country (UPV/EHU), and it shows how the Weaving Terminology Networks (TSE) project tries to compensate for some deficiencies derived from sociolinguistic factors. In section 4 we describe the factors that obstruct the circulation and fixation of natural terminology in academic Basque and we show how intervention sometimes blocks the natural development and self-regulation of terminology carried out within the discourse communities of the experts. The last section provides some concluding remarks.

## **2. The process of revitalization of Basque**

Basque is a minority language that co-exists in a linguistic community where the dominant languages are two major world languages: French in the northern part of the Basque Country and Spanish in the southern part. French and Spanish

are the official state languages in France and in Spain, respectively, and this status is linked to the right and the duty to know them. The status of Basque varies in the different regions of the Basque Country (Euskal Herria). In the Spanish side, the law on Basque or Euskara (1982) made Basque co-official together with Spanish in the so-called Autonomous Community of the Basque Country, which contains the territories of Bizkaia, Gipuzkoa and Araba. However, in the territory of Nafarroa, Basque has only the status of an official language in the “Basque-speaking zones”. In fact, the Navarrese law on Basque (1986) determines the areas of the territory in which Basque is official. Finally, in the French Basque Country, the legal status of Basque is radically different, since this region lacks political autonomy and French is the only official language of the republic.<sup>5</sup> We must point out that in this work we are taking into account data and facts concerning basically the Autonomous Community of the Basque Country, where language policies and initiatives aimed at revitalizing the Basque language are more active.

Since the creation of the Autonomous Government (1978) for three of the provinces in the Basque Country (Bizkaia, Gipuzkoa and Araba) and the recognition of Basque as an official language in this area, Basque has been introduced in administration, public education and mass media. Thanks to the change in the status, the process of revitalization has been quite successful. Sociolinguistic inquiries since 1991 have shown a constant growth in the number of bilingual speakers, especially among the 16-24 year old age range. This growth has been accompanied by more transmission of the language. In fact, the 5<sup>th</sup> sociolinguistic inquiry made in 2011 showed the existence of 600,050 bilingual speakers, 181,000 more speakers than in 1991.

However, the revitalization of the language is not restricted to the increase in the number of speakers: the development of the language itself is also necessary. In the first half of the 20<sup>th</sup> Century Basque was restricted to private use. It was losing speakers, dialects were increasingly more different from each other and therefore understanding was hindered. The creation of a standard was necessary for several reasons: to avoid further differentiation of dialects, to extend language to formal domains and to gain speakers. The Royal Academy of the Basque Language started the process of standardization of Basque in 1968. It is important to note that the codification of the general standard overlaps with the elaboration of specialized registers, as the latter was already being carried out since 1970. This overlap has, as a consequence, a great instability in the development of specialized registers, which are based on the standard code and are continuously being adapted to the evolution of this code.

---

<sup>5</sup> About the legal status of Basque see López Basaguren (2012).

Table 1 provides a chronogram of the most relevant landmarks in the codification of the general standard Basque and in the elaboration of specialized registers.<sup>6</sup>

The Royal Academy of the Basque language (Euskaltzaindia) started the process of standardization in 1968 and, for this task, a compositional model based on the central dialects was followed. In the 1960s the orthographic and morphosyntactic rules for the standard variety were codified; during the 1980s the rules for adapting loanwords were set down and the rules for word formation were thoroughly described. A better knowledge of the word creation rules turned out to be of paramount importance to drive the development and analysis of specialized vocabulary that was necessary for the modernization of the language. However, the codification of the normative dictionary (*Hiztegi Batua*) did not start until the 1990s, and its first edition was not published until 2000.

The extension of the use of the language into public domains that require formal registers (teaching, administration and mass media) happened faster than the codification of the standard variety. By 1970 a small group of scientists and engineers started to elaborate on the language for specialized uses, mainly by creating teaching materials and popular science articles (Irazabalbeitia, 2002; Etxebarria, 2002). In 1972 the cultural association Elhuyar was created, whose aim was to promote science in Basque. In 1974 the popular science journal in Basque *Elhuyar* was created. It was at this time that the Basque Summer University (Udako Euskal Unibertsitatea) was created with the aim of promoting the creation of a Basque University. We may say that in those first few years the elaboration, diffusion and implantation of terminology occurred in a parallel fashion, since the discourse community was very small and terminological work was being developed by general consent.

Along the same lines and in coordination with the dynamics described above, in 1977 UZEI (The Basque Institute for the University) was created, with an aim to produce and spread terminology in order to facilitate the use of Basque in the university. According to Irazabalbeitia (2002), by 1980 the foundations for making science in Basque were set: a basic lexicon, basic nomenclatures and basic phraseology. In 1986 UZEI created the terminological database *Euskalterm* and in the same year the Basic Law of Normalization of the Use of Basque came into effect. In 1987 UZEI came under the tutelage of the Basque Government. In 2001 *Euskalterm* became the Basque Public Term bank and in 2002 the Commission for the Normalization of Terminology (*Terminologia Batzordea*) was created.

---

<sup>6</sup> For the steps of standardization we use the terminology in Haugen (1983).

	CODIFICATION OF THE GENERAL STANDARD BASQUE	ELABORATION OF SPECIALIZED REGISTERS
1968	Selection (Standard)	
1970	Codification (Graphization & Grammatization)	The creation of specialized glossaries. Usage of Basque in scientific texts by scientists and engineers
1971		<i>Elbuyar</i> group is created for promoting the use of Basque in science
1974		<i>Elbuyar</i> journal and the Basque Summer University (UEU) are created
1977		UZEI institute is founded for creating and diffusing terminology
1980	Norms for adapting loanwords / word creation rules	
1982		EIMA committee is created for the linguistic control of primary and secondary school teaching materials
1986		<i>Euskalterm</i> (UZEI) (Terminology database for the diffusion of terminology) is set up
1987		UZEI becomes an entity supervised by the Basque Government
1990	Lexical codification of the normative dictionary starts	
2000	First publication of the normative dictionary	The Basque Language Service at the university is created for the creation and linguistic control of materials for university teaching
2001	Continuous feeding of the normative dictionary	<i>Euskalterm</i> becomes the Basque Public Term Bank
2002		The Official Commission for Terminology is established

Table 1: Chronogram of the codification of the standard Basque and the elaboration of specialized registers.

As the chronogram in Table 1 shows, there is an overlap between the most important steps of the codification process of the general standard and those of the institutionalized initiatives aimed at the elaboration of the specialized registers. Often, the same agents participate in both processes, and as we will show in section 4, this makes it difficult to distinguish clearly the aims of each process. On the other hand, we must consider the fact that the use of Basque in academic contexts has grown a great deal in the last four decades and hence, the community of teachers/experts and students that use specialized registers is different nowadays compared to the first group that used to decide on issues about Basque specialized registers by consent. Nowadays, it is unthinkable to carry out terminology planning without taking into account the users themselves and their real use of terminology. Thus, the official language and terminology planning for Basque requires all the processes described in Auger

(1986): systematic collection and study of notions and terms that are being used, normalization, diffusion, implementation, evaluation and control, and updating.

### 3. Basque in academic contexts

The extension of Basque to public education (primary and secondary) and to the university system has been of key importance for achieving a growth in the number of speakers, for the implementation of the general standard code, and for the development of the academic registers and terminology. Most parents choose the educational model of full immersion in Basque (model D). Thus, 70.36 % of the students registered in primary school in the academic year 2011-2012 chose model D. 61 % of the students aiming to enter university took their entrance exams in Basque. 46.72 % of the university students study their degree completely or partially in Basque; in the year 2011-2012, 78 % of the compulsory credits were offered in Basque and 45.10 % of the teachers were bilingual. The use of Basque as a vehicular language in the university studies will determine to a large extent the future specialists' knowledge and adequate use of the terminology and it is definitely an option that favors and helps the use of the language in professional domains. However, due to the fact that Basque is still in the normalization process, the input that the students receive from their teachers and teaching materials is not considered as sufficient in order to fully develop their linguistic competences in specialized registers. In order to compensate for these deficiencies, all graduate studies offer two optional subjects that deal with linguistic issues and provide the students with opportunities to improve upon their communicative academic and professional skills in Basque. Other refresher courses are also offered to the teachers, in which help is provided to adapt to the processes of standardization and elaboration of the norms of usage of the general language.

From the data provided above, we may deduce the importance of academic communication in Basque. Subjects from all areas are taught in Basque within university, and it is obvious that no teaching can be carried out without terminology. In order to satisfy the demand that exists to study in Basque, two elements are necessary: teachers/experts of the areas capable of teaching in Basque, and handbooks and textbooks that complement the teaching. Sometimes, teaching handbooks and other types of publications are created collaboratively by individual teachers themselves or by groups of teachers. On the other hand, the Vice-chancellorship of Basque and Multilingualism of the University has made great efforts in translating many reference manuals of various disciplines with the aim of covering the deficiencies that are still evident in University level Basque teaching materials. This work is typically conducted by translators, and afterwards, some expert teacher checks the translation. In any case, all publications that aim to be published by the University of the Basque Country must necessarily be reviewed and accepted by the Language Services (*Euskara Zerbitzua*). These activities aim at compensating for the lack

of published materials in Basque. However, it is necessary to point out that there exist other reasons that are related to linguistic control. In fact, it is often believed that the texts produced by translators are more correct and genuine than the ones produced directly by experts or teachers.<sup>7</sup> On the other hand, based on the traditional idealized view of terminology expressed by Wüster (1979), any terminological variation is often viewed as the sign of a lack of normalization, and it is often assumed that linguistic control of terminology must include the reduction of variation that it is intended to eradicate.<sup>8</sup> Thus, it is assumed that the variants that have been accepted and prioritized in the texts that have been checked and published by the Language Services as well as the new terms proposed in such texts establish a precedent that needs to be taken into account when processing future texts. Thus, controlled texts are implicitly assigned a semi-prescriptive function. There are no precise studies about the implantation of the terminological proposals contained in the controlled texts of the Language Services of the university and it is difficult to evaluate the success rate of such a policy. However, as will be shown in section 4, there is evidence that interventionist and prescriptive policies can block the development and natural self-regulation of real terminology that is being used.

### **3.1. Achievements and deficiencies of the language policy at the University of the Basque Country (UPV/EHU)**

Undoubtedly, the language policy of the University of the Basque Country (UPV/EHU) has obtained notable achievements regarding the status and corpus planning of academic Basque. Nevertheless, we have detected some deficiencies that might suggest that this language policy may be hindering the natural development of academic registers rather than promoting it.

As for the achievements, there has been a considerable increase in the number of bilingual teachers: the rate of bilingual teachers grew from 13 % to 45.2 % between the years 1988 and 2011. This increase in the number of users of academic registers in Basque is significant. On the other hand, there has been a considerable growth in publications of translated manuals and of teaching materials created by teachers online: 30 manuals and 143 online teaching materials were published between 2007 and 2012. Besides, we must point out

---

<sup>7</sup> This seems to be a belief that has no real basis. In Zabala et al. (2012), we have shown that in the case of terminology in human anatomy, linguists and professors of this area have collaboratively worked and have managed to elaborate and agree upon terminology that is more correct and patrimonial than the terminology proposed initially by translators.

<sup>8</sup> In the languages in the process of normalization, asystematic variation is typically greater than in normalized languages, but, in contrast, because of the lack of functional development in such languages, functional variation is typically underdeveloped. A study of variation in texts of genomics of different levels of specialization (Elordui & Zabala, 2005) has proven that Basque terminology shows signs of some development of functional variation.

that there has been important progress in terms of the quality of published texts, as well as regarding the grammaticality, naturalness and the implementation of the standard code. Finally, it is also important to note that there has been a growth in the production of end-of-degree projects, of master theses and doctoral dissertations written and defended in Basque.

Nevertheless, an analysis of such linguistic policies from the new linguistic-communicative and sociocognitive approaches to terminology reveals two types of deficiencies: on the one hand, we have detected deficiencies that are strictly due to sociolinguistic reasons which have not been taken into account when designing the language policy of the institution. Others are due to the prescriptive and interventionist policy that is being applied. This policy is based on assumptions and practices that have been proven to be insufficient and ineffective in contexts of natural and social communication in which the development of a minorized language is being promoted.

As for the former type of deficiencies, it cannot be ignored that there is a lack of fluid communication networks among teachers. The fact that university teachers pass on specialized knowledge of the area to the students that intend to become specialists suggests that there is a fluid and well established communication between teachers and students and between students in general. However, the communication between many of the experts that use Basque in teaching is very limited, since specialized knowledge is developed and fixed in international discourse communities that employ English or other major world languages. Thus, there is a great asymmetry between the use of Basque among future experts in teaching and the use among experts, which is mostly related to research activities.

On the other hand, since real communication in Basque occurs for the most part in university classrooms, this type of communication mostly consists of oral and written spontaneous texts that teachers elaborate upon and check in the everyday teaching-learning process. As a consequence, although the methodology derived from the new approaches to terminology requires access to the real terminology used in the discourse, it is really difficult to access the texts created in real communication contexts.

Other deficiencies are related to the intervention over academic registers that is being made by checking texts for publication, through the refresher courses that are offered to teachers and through the recommendations that are often issued by mailing lists and by the online reference and consultation websites. We have detected three types of deficiencies: on the one hand, it seems that the aims and criteria of the functional elaboration of specialized registers are mixed with those of the codification and implementation of the general language. In fact, we have observed that there is a uniform application of the stylistic recommendations and norms of the general language that do not acknowledge the specificities of specialized communication in the activities carried out by the

Basque Language Services (checking of texts, courses for teachers, online recommendations). On the other hand, non-systematic intervention in terminology is being carried out without systematic terminology planning. This intervention is based on the premise that terms must be univocal and that any kind of variation must be reduced. The intervention is also mainly based on purely linguistic considerations, leaving aside sociolinguistic and terminological criteria. Lastly, the interventions of the Language Services blindly prioritize the variants collected in general and specialized dictionaries as well as in the *Euskalterm* terminological database over other variants used by experts, without taking into account the fact that the variants collected in the former are often lexicographic or terminological proposals whose real implantation in discourse has not yet been studied and evaluated.

These deficiencies in the approach, aims and practices of the language policies of the university suggest that the linguistic control and intervention that is being made over academic texts and over the linguistic competence of the users that directly participate in specialized communication may hinder the natural development of specialized registers, and especially of terminology.

### 3.2. The Weaving Terminology Networks (TSE) Project

The Weaving Terminology Networks (TSE) project (Zabala et al., 2011) was designed to help overcome some of the difficulties and deficiencies described in section 3.1. It started in 2008, and the main goals were to compensate for the lack of fluid communication networks among teachers and to make real texts and terminology visible for consultation. The teachers that participate in the TSE program upload their teaching material to a documentary database. Then, the texts are linguistically processed and published in a consultation interface (*Garaterm* corpus) (Zabala et al., in progress). On the other hand, the semiautomatic terminology extractor *Erauzterm* (Alegria et al., 2004) extracts the term candidates contained in the texts and the teachers validate the terminology of their subject. Next, the teachers create a plurilingual glossary and assign the Basque terms the equivalents in other languages. Finally, the glossaries obtained by this methodology are dumped in a tool that allows online consultation of terms: *Terminologia Zerbitzurako Online Sistema* (TZOS) (Arregi et al., 2010). Thanks to the processes and tools that we are using in the TSE program, we manage to give access to the texts and terminology employed by the teachers in the teaching-learning activity of their subject. Moreover, the TSE program is a training program too, and we discuss the terminology and texts of the teachers in forums and seminars.

The TSE project allows us to access teachers' teaching materials and terminology contained in them. Since 2008, around 200 teachers have participated in the project and we have created a corpus of about 6 million words, as well as about 70 plurilingual glossaries. Besides, the seminars and forums enable linguists to get first-hand information about the experts'

opinions and attitudes about official terminology and about the linguistic control that correctors exert over their texts. The experts' reflections have also provided us with evidence that, although neonymy in Basque is overwhelmingly secondary (aimed at providing the equivalents for the terms in other languages), the conceptualization that the experts have carried out through the texts they have processed and/or produced in other languages is crucial for understanding the linguistic motivation of the Basque equivalents. Besides, the experts' reflections have provided us with evidence that, in some cases, the intervention that is made on the teachers' texts (either through corrections of their texts or by the application of the recommendations that consultation websites offer) may interfere in the development of specialized terminology in Basque, or more specifically, in the creation, circulation, functional adaptation and natural fixation of terminology. Moreover, as we have pointed out in section 3.1., the type of intervention that is typically carried out is non-systematic, and depends largely on the "official" terminology collected in terminological databases and in dictionaries of different degrees of specialization. However, the promotion or imposition of specific variants may interfere with the natural dynamics of the development: the creation, circulation, and adaptation of terminology in real use involve a very dynamic process in a language like Basque, which is in the process of revitalization and elaboration.

In our view, no intervention over terminology and over specialized registers should be made without a previous description and monitoring of the development and self-regulation of real terminology. Such monitoring is also necessary to evaluate the implantation of official terminology in discourse. It is this conviction that is the basis of the TSE project.

#### **4. Factors that hinder the circulation and fixation of natural terminology in academic Basque**

The TSE program has allowed us to access the teaching texts from the many teachers that use Basque in their classes. Besides, through seminars and forums we have had the chance to exchange with the experts about their linguistic practices. This interaction has allowed us to realize that they are open to changing linguistic practices when linguists suggest more correct, more genuine or more efficient options from a communication perspective. Moreover, we have obtained first hand information about the problems and reactions that experts express when they are faced with official terminology proposals that are intended to be implanted through linguistic control over academic texts. These are some of the problems we detected:

- Many variants that are used by experts are not collected in the Basque Public Term Bank.
- The decisions of the general normative dictionary are extrapolated blindly to the Basque Public Term Bank and to the linguistic control of academic registers.

- Lexical units of the general language that have activated specialized values are sometimes corrected, without taking into account pragmatic-discursive criteria, which blocks the necessary innovation for the development of terminology.
- The normative dictionary is an ongoing project and sometimes includes non-correct variants without collecting existing correct variants that are used by experts.

#### 4.1. Variants used by experts that are not collected in the Basque Public Term Bank *Euskalterm*

Currently, term databases and terminological dictionaries still contain few entries. Besides, many of those entries are proposals which date from the 1980s, a time when Basque was being introduced into university studies. Besides, there is no research about the implantation of the terminology that *Euskalterm* offers, nor of the real terminology used by experts. As a consequence, the official terminology that is typically consulted by users is not updated nor adapted to the development and natural self-regulation of real usages. Many terms and variants that university teachers use are not collected in *Euskalterm*, and instead, it contains terms and variants that have not managed to be implanted in the discourse of the experts or variants that are being replaced by others that are more suitable for the pragmatic-discursive needs of a given specialized field. We must keep in mind that, when one variant of a term is used by experts but not collected in the official terminological database *Euskalterm*, linguistic intervention will tend to correct it and to replace it with a codified variant.

One example of the situation described above is the term *muscle*. In the *Euskalterm* database, we find the variant *muskulu* in 164 compounds and syntagmatic terms, but the patrimonial variant *gihar* does not appear. The latter was not collected in the database in the past, because this variant was not considered as adequate for the anatomical term. We have compared the occurrences of the variants *muskulu* and *gihar* in two general and two specialized corpora. As for the former, we have made searches in the general corpus *Ereduzko Prosa Gaur* (EPG) (25.1 millions of words), which contains literature and press texts collected between the years 2000 and 2006 and selected according to linguistic quality criteria. On the other hand, we have used the *XX. Mendeko Euskararen Corpus Estatistikoa* 'The Basque Statistical Corpus of the 20<sup>th</sup> Century' (XX.c.e.) (4.6 millions of words), which is a reference corpus, statistically balanced and based on the collection of all texts produced in Basque between 1900 and 1999. As for the specialized corpora, we have employed *Zientzia eta Teknologiaren Corpora* (ZT corpus) (8.5 millions of words), which is composed of science and technology texts of various degrees of specialization published between 1990 and 2002. Lastly, we have used the corpus created in the TSE project between 2009 and 2011. This corpus currently contains 6.2

million words from the teaching materials of the university teachers that participate in the program.

The analysis and comparison of general and specialized corpora reveals that the loanword *muskulu* is not the only variant that we find in the use of specialists, as Table 2 shows. On the one hand, the patrimonial variant *gibar* is attested more often in general corpora (EPG and XX.c.e) than in specialized corpora (ZT and TSE). However, it is noteworthy that the ZT corpus, which is composed of linguistically controlled texts, shows that *muskulu* has been used much more often than *gibar* (1,768 vs 140 occurrences), whereas the TSE corpus, which exclusively contains spontaneous texts used in university classrooms shows that *gibar* has up to half of the occurrences compared with *muskulu*. Most of the occurrences of *gibar* in TSE are attested in texts of anatomy in the faculties of Medicine and Dentistry, and in the faculty of Pharmacy. This shows that the experts in the area have activated the specialized value in the patrimonial variant *gibar*. The usage rate of these terms with respect to the total number of words of each corpus reveals that, compared to the other corpora, the TSE corpus contains a considerably greater number of texts of anatomy.

	General corpora		Specialized corpora	
	EPG	XX.c.e.	ZT corpus	TSE corpus
	25.1 M of words	4.6 M of words	8.5 M of words	6.2 M of words
<i>gibar</i>	498	118	140	1,241
<i>muskulu</i>	246	64	1,768	2,798
Occurrence rate of the concept (p. M of words)	29.6	39.6	224.5	651.5

Table 2: Comparison of the occurrences of the variants *gibar* and *muskulu* in general and specialized corpora that contain linguistically controlled texts or spontaneous texts.

Considering all this, a socioterminological approach that takes into account the evolution of real terminology in discourse should acknowledge the use of the patrimonial variant and at least collect it as a synonym. If not, the productive use of this term in anatomy will be blocked either in texts which are controlled and corrected or when the *Euskalterm* database is consulted by translators and teachers. We must keep in mind that Basque is in the process of lexical-discursive development and that the frequency in the use of variants should be considered from a dynamic and diachronic perspective. What is typically expected from such processes is an evolution from variants that are dependent on the dominant languages to patrimonial variants. In fact, in the seminars and forums with the experts, we have observed that they tend to choose the more genuine forms as reference terms or denominations.

#### 4.2. Blind extrapolation of the decisions of the normative dictionary to terminology

The decisions of the normative dictionary of the Basque Language Academy are often applied and adopted blindly in the Public Term Bank. The aim of the normative dictionary is to codify the general standard lexicon and the methodology employed does not include the elaboration and analysis of specialized corpora. The general normative dictionary is also employed as a reference source in correcting academic texts. In fact, a study of the implantation of the entries of possible terminological value that are included in the normative dictionary revealed an implantation rate of 95 % in academic texts (Loinaz, 2007). This shows that there exists a strict linguistic control over such texts and that there is a tendency to prioritize the entries collected in the normative dictionary, disregarding all pragmatic-discursive criteria.

We find a clear example of such an intervention in the term *liseriketa* 'digestion', a term that has been widely and exclusively used for the last two decades in teaching in all areas in Basque. However, in the edition from the year 2000 of the normative dictionary this term was proscribed and the loanword *digestio* was prioritized. The reason for this decision was that the verb *liseritu* 'to digest', from which the term *liseriketa* was derived, was phonologically irregular. Although the normative dictionary does not specify any sign of field of specialization for the entry *digestio*, the term *Euskalterm* bank and the *Elbuiar* dictionary have applied this norm to all the terms that contain either the verb *liseritu* or the noun *liseriketa*. Thus, terms such as *liseri-aparatu* 'digestive system' are proposed as *digestio-aparatu*.

The change just described was strictly based on linguistic criteria and did not take into account sociopragmatic or terminological considerations. The consequence is a setback in the elaboration of the derivative and compositional paradigm in which the verb *liseritu* 'to digest' used to participate. In fact, if we compare the different editions of the *Elbuiar* dictionary, we realize that all the terms derived from the verb *liseritu* 'to digest' that used to appear in the 1996 edition, previous to the decision taken by the normative dictionary, have disappeared in the 2000 edition: *liserigailu* 'digestor', *liserigaitz* 'indigestible', *liserigarri* 'digestible', *liserigarritasun* 'digestibility', *liseriketa* 'digestion'. Moreover, only two of the derivatives have been replaced by adapted loanwords: *digestio* 'digestion' and *digestore* 'digester'. Note that the derivatives of the verb *liseritu* formed by the suffixes *-garri*, *-gaitz* and *-gailu* would be phonologically inadequate, since they would contain two velar sounds. The application of the rule of the general normative dictionary to terminology has caused a setback in the development of terminology through genuine Basque suffixation, since it has contributed to the disappearance of derived lexical units that were well-established in use.

The application of the rule that we are describing in this section has also had consequences in the system of compound terms that refer to organs of animals. These terms had traditionally been formed by compounds of the type [V+N]: *liseri-aparatu* 'digestion system' (lit. 'digest system'), *ugal-aparatu* 'reproductive system' (lit. 'reproduce system'), *arnas-aparatu* 'respiratory system' (lit. 'breathe system'). However, such terms have turned into compounds of the type [N+N] in the official terminology, which results in a much more asystematic paradigm: *digestio-aparatu* (lit. 'digestion system'), *ugaltze-aparatu* (lit. 'reproducing system'), *arnas-aparatu*<sup>9</sup> (lit. 'breath system').

#### 4.3. Correction of lexical units of the general language that have activated specialized values

The teachers that participate in the seminars and forums of the TSE program often show resistance to the corrections that are made on characteristic terminology within their field which appears in their texts. Such corrections contradict the teachers' linguistic experience, and the reasons that are provided for such corrections are often not convincing for them. We will next describe two cases. On the one hand, we will deal with terms specific to the fields of molecular genetics (*adierazi* 'to express', *adierazpen* 'expression', referred to genes), and next, we will describe facts about a group of lexical items in the field of statistics (*estimatu* 'to estimate', *estimazio* 'estimation', *estimatzailer* 'estimator'). Unlike the former, the examples of statistics that we will deal with include terms that appear in almost any discipline, precisely because statistics contains the tools that are used in almost every knowledge area.

As for the expressions of the fields of molecular genetics such as *geneak adierazten dira* 'genes are expressed', *gene-adierazpen* 'gene expression', the experts often complain about the fact that they are obliged to change the patrimonial forms *adierazi* and *adierazpen* to the loanwords *espresatu* and *espresio*. This surprising correction is based on the fact that the general dictionaries collect the verb *adierazi* as a transitive dyadic or triadic verb (*bori adierazi diote* 'they have expressed that', *bori adierazi diote* 'they expressed that to him/her'). From the information gathered from general dictionaries, the language correcting agents deduce that the intransitive use of the verb is a syntactic *calque* that is not compatible with the Basque system. This is a restricted interpretation of the Basque linguistic system and it ignores the fact that it is the semantic features of the subject that determine the syntax of the verbs within the system of the language. Thus, when the subject is human, the sequence \**Jon ondo adierazten da* 'Jon expresses himself well' may be considered as a syntactic *calque* that may even be considered as ungrammatical within the system of the language. However, as Zabala (2004) explains, *geneak* 'genes' are the molecular support of genetic information which is necessary for protein synthesis, and when it is the

<sup>9</sup> In the case of *arnas-aparatu*, the first element *arnas* 'breath' may either be analyzed as the root of the verb *arnas(tu)* 'to breathe' or as the noun *arnasa*, whose final *-a* has been deleted for being the first element of the compound.

subject of the sentence, its thematic role is *internal cause*. When the subject receives this role, Basque invariably employs the intransitive auxiliary *izan* 'to be': *zuhaitza loratu da* 'the tree has blossomed', *txoria lumatu da* 'the bird has plucked'. From these facts we may conclude that the justification for the intervention or correction described above is not right, since it is based on too strict and too rigid an interpretation of the lexical-syntactic system of Basque.

Temmerman's (2000) sociocognitive approach sheds more light on the development of the terminology of molecular genetics and helps us better understand the way in which the term at hand was created. From analyzing terminology within the discourse area, and from interviews carried out with experts, she reaches the conclusion that in the life sciences there is a growth of understanding and knowledge through metaphorical reasoning, whose results are metaphorical lexicalizations for many (new) categories in the discipline. Metaphorical reasoning amounts to the understanding of a new fact, situation or process based on the imagined analogy with something one already understands. The result of analogical reasoning is the metaphorical naming of new categories with existing lexemes (Temmerman, 2000 : 69-71). Temmerman postulates that the domain metaphor underlying the understanding of molecular genetics is that heredity is based on information stored in our genes (DNA). Several sub-domains are expanded from this general domain and one of these is that «DNA is a language. Genes are messages written in a language», thus they are encoded in a sequence of letters, and they are transcribed into messenger RNA, which is then translated into protein. Protein synthesis is in this metaphorical reasoning the result of gene expression.

The Basque experts that have conceptualized the knowledge of their field by using the aforementioned metaphoric strategies express the concepts by using the corresponding Basque lexical terms in accordance with such a conceptualization: *kode* 'code', *kodetu* 'codify', *adierazpen* 'expression', *transkripzio* 'transcription', *itzulpen* 'translation'. Thus, a semantic-pragmatic analysis of the term *gene-adierazpen* clearly shows us that the Basque experts in molecular genetics have activated the specialized value of the lexical units by following the logic of the semantic-pragmatic conditions in which the discourse of the specialized area is developed. The term *gene-adierazpen* is collected in *Euskalterm* but, nevertheless, the Language Services of the university keep on correcting the term inertially in their publications. Moreover, they even recommend the term *gene-espresio* over the term *gene-adierazpen*.

As for the second example that we intend to develop in this section (*estimatu*, 'estimate' *estimazio* 'estimation', *estimatzailer* 'estimator'), some participants in the TSE project show resistance to the corrections and suggestions to replace them with the neologisms *zenbatetsi*, *zenbatespen* and *zenbatesle*. The reason for this is that such corrections contradict their linguistic experience from the last decades. The justifications for the corrections are based on the idea that in Basque, *estimatu* and *estimazio* may only mean 'to appreciate; to be grateful' and

'esteem, regard; affection', respectively. However, the Basque General Dictionary (*Orotariko Euskal Hiztegia*), which collects the lexicon of literary tradition in Basque, contains the term with the meaning corresponding to statistics in *estimatu*, *estimazio* and *estimatzaille*. Moreover, *Orotariko Euskal Hiztegia* also contains the entry *zenbatetsi* with the following note: «"Tasar calcular" Azkue cita este neologismo, que no aprueba totalmente.» ("To rate, calculate" Azkue mentions this neologism, which he does not approve entirely). As for the normative general dictionary (*Hiztegi Batua*), although it accepts this entry, it also shows some doubts about its composition: «Forma onartzeko eragozpenak aipatu ditu lantaldeak. Berria da eta ez guztiz erregularra osaez; baina hedatua, eta onarpen eske aurkeztua.» (The work team has mentioned several problems in accepting the entry. It is a new form and it is not completely regular in its composition. Nevertheless, it is a unit which is widely used, and its inclusion in the dictionary has been requested). In fact, the verbs that are formed with *etsi* 'to have an opinion about' (*onetsi* 'to accept, to approve', *gaitzetsi* 'to disapprove', *balioetsi* 'to assess, to evaluate, to estimate; to value',...) include a nominal predicate that provides the main meaning: *ontzat hartu* 'to accept, to approve', *baliozkotzat hartu* 'to assess, to evaluate'... Nevertheless, the neologism *zenbatetsi* combines the verb *etsi* with a question word *zenbat* 'how much'), and its irregular nature makes the whole unit hard to interpret and to employ in syntactic compositions. From a discursive viewpoint, *zenbatetsi* does not seem to be a suitable solution for all the contexts in which *estimatu* may appear.<sup>10</sup>

On the other hand, if we compare the occurrences of the different meanings in general and specialized corpora, we see that in general corpora such as EPG, *estimatu* and *estimazio* mostly appears associated with the meaning 'to appreciate; to be grateful' (976 and 132 occurrences, respectively) and that it only contains the statistical meaning in a few examples (17 and 25, respectively). On the contrary, in specialized corpora (ZT and TSE), we only find the statistical meaning. As for the distribution of the variants *estimatu*, *estimazio*, *estimatzaille* and *zenbatetsi*, *zenbatespen*, *zenbatesle* with the statistical meaning, we see that the former are attested widely in all types of corpora:

<sup>10</sup> The database *Euskalterm* collects *zenbatespen* as a synonym of *estimazio* in many entries.

	General corpora		Specialized corpora	
	EPG	XX.c.e.	ZT corpus	TSE corpus
	25.1 M of words	4.6 M of words	8.5 M of words	6.2 M of words
<i>estimatu</i>	17	24	69	138
<i>estimazio</i>	25	24	32	172
<i>estimatzaille</i>	0	2	19	100
Occurrence rate (p. M of words)	1.7	10.9	14.1	66.1
<i>zenbatetsi</i>	6	2	4	24
<i>zenbatespen</i>	3	0	6	60
<i>zenbatesle</i>	0	0	0	1
Occurrence rate (p. M of words)	0.4	0.4	1.2	13.7

Table 3: Number of occurrences of the entries *estimatu*, *estimazio*, *estimatzaille* and *zenbatetsi*, *zenbatespen*, *zenbatesle* in their statistical sense in general and specialized corpora.

In conclusion, it seems that the intervention over the group of terms related to statistics is not backed by or grounded in solid linguistic-discursive and lexicographic justifications. Moreover, it intends to change the actual usage of variants that are widely used.

#### 4.4. Inclusion of non-correct variants in the Normative Dictionary without collecting existing correct variants

The normative dictionary of the Basque Language Academy (*Hiztegi Batua*) is an ongoing project that is being fed with new entries and meanings as the committee that is in charge of its elaboration analyzes and discusses new word lists. In some cases, we find that some variants that are clearly incorrect have been included in the dictionary and, in contrast, other variants that are attested in real use by experts have not been analyzed or included. We find a paradigmatic example of this in the entry *konjokatu* 'conjugate'. This is an analogical form that is not acceptable semantically or structurally: it is composed of the loaned prefix *kon-*, which does not exist in Basque, and the verb *jokatu* 'play'. The word comes from the Latin form *conjugare* 'to yoke together'. Thus, there would be two correct options: the adequately adapted loanword *konjugatu* or the Basque compound form *uztartu*, which has been

formed by the noun *uztarrri* 'yoke' and the verbal suffix *-tu*, which is sometimes used by experts and would be the patrimonial equivalent of the Latin parasynthetic derived form.

Collecting incorrect variants in the normative dictionary and not the correct and genuine variants blocks the circulation and implantation of the uses that experts make of the correct forms, which should be the objective of terminology planning. In correcting texts, it is often ignored or forgotten that the general and normative dictionary is an unfinished product and, as a consequence, many forms that are not collected in this dictionary are often rejected for the sake of forms collected in this dictionary.

## 5. Conclusions

In this work we have analyzed the language policy of the University of the Basque Country (UPV/EHU) and its contribution to the development of academic registers. The analysis has been done from the perspective of the new linguistic-communicative and socioterminological approaches to terminology. We have described the achievements of the policy, such as the increase in the number of students that study partially or completely in Basque, the growth in the number of bilingual teachers and in the number of credits that are offered in Basque, and the production of teaching materials and academic works (end-of-degree projects, master's theses, doctoral dissertations). We consider that these achievements are meaningful, since the use of Basque as a vehicular language in university classrooms is crucial for the development of specialized registers and terminology from all areas, and also for its diffusion in society through experts that are trained in such areas. The improvement in the linguistic quality of the texts controlled and published by the Language Services of the university can also be considered as an achievement in the grammaticality, the naturalness and the contribution they make to the implementation of the standard code. However, we have also detected some difficulties and deficiencies in this language policy:

- The process of elaboration of specialized registers in Basque occurs simultaneously with the process of standardization of the general language. As a consequence, the linguistic control of texts is often considered as a uniformizing activity which mixes the opposing goals and criteria of both processes. The goal of the standardization of the general language is the reduction of dialectal variation by establishing a standard variety, whereas the lexical-discursive development requires the promotion of functional variation.
- The use of Basque as a vehicular language in university classrooms is crucial for the development of specialized registers and terminology in all fields, and also for its diffusion in society through experts that are trained in such areas.

- The wide use of Basque as a vehicular language at university level implies the existence of the use of terminology in different areas. However, whereas a solid basis exists in communication between teachers and students, there are no fluid communication networks among experts within knowledge areas. This factor hinders the circulation and fixation of terminology.
- The description of the terminology used in academic communication is crucial for understanding the way it is created and self-regulated. Nevertheless, the fact that most of the communication is oral and carried out through spontaneous unpublished written texts makes it difficult for linguists and other experts to access such texts. This factor obstructs both the description of the terminology as well as the circulation and fixation of the terms created and used by the experts.
- The Weaving Terminology Networks (TSE) program was created with two aims: to describe the real terminology used by university teachers and to compensate for the lack of fluid communication networks among experts, helping the circulation and fixation of natural terminology.
- Based on our study of the texts and the opinions we have gathered from the experts that participate in the TSE program, we have detected three factors that we believe may be hindering and slowing down the natural development of academic terminology:
  - Planned official terminology and general and specialized dictionaries blindly apply the decisions taken for the general normative dictionary.
  - There is a lack of terminology planning in the linguistic services of the university (UPV/EHU), which is reflected in non-systematic intervention on terminology that sometimes lacks robust and plausible criteria.
  - Interventions made in translating and correcting academic texts excessively depend on official terminology and do not take into account the natural continuous updating of lexical elements that occurs in university classrooms.

### **Acknowledgements**

This research was supported by the University of the Basque Country and the Elhuyar Foundation (Garaterm-2 project [US10/01]), and by the Basque Government (WIKITZUL project [S-PE12UN082]).

## References

- ALEGRIA I., GURRUTXAGA A., LIZASO P., SARALEGI X., UGARTETXEA S., URIZAR R. (2004), An Xml-Based Term Extraction Tool for Basque, In *4th International Conference on Language Resources and Evaluations (LREC)*. Lisbon.
- ARREGI X., ARRUARTE A., ARTOLA X., LERSUNDI M., SANTANDER G., UMBELLINA J. (2010), TZOS: Terminologia Zerbitzurako On-line sistema, In X. ALBERDI & P. SALABURU (eds.), *Ugarteburu Terminologia Jardunaldiak*, 136-153, Bilbao, The Publication Service of the University of the Basque Country.
- AUGER P. (1986), Francisation et terminologie: l'aménagement terminologique, In G. RONDEAU & J.C. SAGER (eds.), *Termina 84: terminologie et coopération internationale : la terminologie, outil indispensable au transfert des technologies*. Colloque international de terminologie, Luxembourg, 47-55, Québec, Birsterm.
- AUGER, P. (1999), L'implantation des officialismes halieutiques au Québec: essai de terminométrie, Coll. «Langues et sociétés», Québec, Gouvernement du Québec, 221.
- BOULANGER J.C. (1991), Une lecture socioculturelle de la terminologie, *Cahiers de linguistique sociale*, Vol. 18, 13-30.
- CABRÉ M.T. (1998), Prefacio: Importancia y validad de la teoría de Wúster, In M.T. CABRÉ (ed.) *Introducción a la teoría general de la terminología y a la lexicografía terminológica*, 11-13, Barcelona, Institut Universitari de Lingüística Aplicada, Universitat Pompeu Fabra.
- CABRÉ M.T. (1999), *La terminología. Representación y comunicación*, Barcelona, Institut Universitari de Lingüística Aplicada, Universitat Pompeu Fabra.
- CABRÉ M.T. (2001), Sumario de principios que Configuran la nueva propuesta teórica, In M. T. CABRÉ & J. FELUI (eds.), *La terminología científico-técnica*, 17-26, Barcelona, Institut Universitari de Lingüística Aplicada, Universitat Pompeu Fabra.
- CABRÉ M.T. (2002), Terminología y lenguas minoritarias: necesidades, universalidad y especificidad, In *VIII Conferencia internacional de linguas minoritarias. Políticas Lingüísticas e Educativas na Europa Comunitaria*, 89-102, Santiago de Compostela, Xunta de Galicia. Consellerías de Educación e Ordenación Universitaria. Dirección Xeral de Política Lingüística.
- CABRÉ M.T. (2003), Terminología y normalización lingüística, In X. ALBERDI & P. SALABURU (eds.), *Ugarteburu Terminologia Jardunaldiak*, 11-25, Bilbao, The Publication Service of the University of the Basque Country.
- CORBEIL J.C. (1988), Les terminologies devant Babel, *Actes du colloque Terminologie et technologies nouvelles*. París.
- ELORDUI A., ZABALA I. (2005), Terminological Variation in Basque: Analysis of Texts of Different Degrees of Specialization, *Sky Journal of Linguistics*, Vol. 18, 71-92.
- ELORDUI A., ZABALA I. (2009), Euskara Batuaren garapen lexiko-diskurtsiboa: batasunetik aniztasun funtzionalera, In R. ETXEPARE, R.

- GÓMEZ, J. A. LAKARRA (eds.), *A Festschrift for Bernard Oyharçabal*, Anuario del Seminario de Filología Vasca Julio de Urquijo (ASJU), XLIII: 1-2, 231-246.
- ETXEBARRIA J.R. (2002), Euskal prosa zientifikoaren historiaren inguruan, *Hegats*, Vol.30, 63-75.
- GAMBIER Y. (1987), Problèmes terminologiques des pluies acides: pour une socio-terminologie, In *La fertilisation dans les langues romanes, Meta*, Vol. 32-3, 314-320.
- GAUDIN F. (1993), *Socioterminologie: des problèmes sémantiques aux pratiques institutionnelles*. Rouen, Université de Rouen, Publications de l'Université de Rouen, 182.
- GUESPIN L. (1993), Normaliser ou standardiser?, *Le Langage et l'homme*. Vol. XXVIII, 4, De Boeck Université, 213-222.
- HAUGEN E. (1983), The Implementation of Corpus Planning: Theory and Practice, In J. COBARRUBIAS & J.A. FISHMAN (eds.), *Progress in Language Planning International perspective*, 269-290, Berlin, Mouton.
- IRAZABALBEITIA I. (2002), Zientzia komunikazioa Euskal Herrian: hurbilketa modukoa, *Hegats*, Vol. 30, 47-75.
- LOINAZ M. (2007), Estudio de un sistema de medición y diagnóstico de la implantación de la terminología en euskera (proyecto de investigación TEIS), *Espais Terminològics 2007. Neología terminològica: el tractament dels malleus*. Barcelona, Eumo Editorial.
- LÓPEZ BASAGUREN A. (2012), The Legal System of a Bilingual Society, In P. SALABURU & X. ALBERDI (eds.), *The Challenge of a Bilingual Society in the Basque Country*, 33-50, Reno, Center for Basque Studies Current Research Series 9.
- QUIRION J. (2003), *La mesure de l'implantation terminologique: proposition d'un protocole. Étude terminométrique du domaine des transports au Québec*, coll. Langues et sociétés, Vol. 40, Montréal, Office Québécois de la Langue Française.
- TEMMERMAN R. (2000), *Towards New Ways of Terminology Description. The sociocognitive approach*. Amsterdam/Philadelphia, John Benjamins.
- WÜSTER E. (1998[1979]), *Introducción a la teoría general de la terminología y a la lexicografía terminológica*. M.T. CABRÉ (ed.), Barcelona, Institut Universitari de Lingüística Aplicada, Universitat Pompeu Fabra. [translation of Wüster E., (1979) *Einführung in die Allgemeine Terminologielehre und Terminologische Lexikographie*. 2 Vol. Viena].
- ZABALA I. (2004), Causation and Semantic Control. Diagnosis of Incorrect Uses in Minorized Languages, In B. OYHARÇABAL (ed.), *Inquiries into the Lexicon-Syntax Relations in Basque*, 255-284, Bilbao, ASJU.
- ZABALA I., SAN MARTIN I., LERSUNDI M., AZKUE J.J., MENDIZABAL J.L. (2012), The Elaboration of Human Anatomy Terminology for the Basque Language: the Contribution of Translators, Linguists and Experts, *Terminalia*, Vol. 6, 15-25.
- ZABALA I., SAN MARTIN I., LERSUNDI M., ELORDUI A. (2011), Graduate Teaching of Specialized Registers in a Language in the Normalization Process: Towards a Comprehensive and Interdisciplinary Treatment of Academic Basque, In S. MARUENDA-BATALLER & B.

CLAVEL-ARROITA (eds.), *Multiple Voices in Academic and professional Discourse*, 208-218, Cambridge, Cambridge Scholars.

ZABALA I., LERSUNDI M., LETURIA I., MANTEROLA I., SANTANDER G. (in progress), GARATERM: euskararen erregistro akademikoen garapenaren ikerketarako lan-ingurunea, In X. ALBERDI & P. SALABURU (eds.), *Ugarteburu Terminologia Jardunaldiak V: Terminologia naturala eta terminologia planifikatua euskararen normalizazioari begira*. Bilbao, The Publication Service of the University of the Basque Country.