

## Attitudes and Discourse: Spanish Practitioners' and Undergraduates' Survey Results

Actitudes y discurso: resultados de encuestas a profesionales y estudiantes de medicina

Isabel Herrando-Rodrigo\*

Centro Universitario de La Defensa, Zaragoza, Spain

The emergence of English as the international language of communication has increased the attention and concern given its teaching and learning. This survey-based study explores the attitudes of Spanish practitioners and undergraduate students towards English as the vehicular language in the field of medicine and towards Medical Electronic Popularizations as an alternative to medical research articles. The survey results point out that these subjects' perception of English as the vehicle of communication in the medical field and their conceptualization of medical electronic popularizations are positive. Pedagogical implications can be drawn from this study since it confirms our students' awareness of the use of English and the new-born genres or communication channels.

*Key words:* New-born genres, practitioners' and undergraduates' attitudes towards written discourse and towards English, survey-based study.

El papel del inglés como lenguaje internacional de comunicación ha despertado interés en lo que respecta a su enseñanza y aprendizaje. El presente sondeo explora las actitudes de médicos y estudiantes de medicina españoles hacia el inglés como lenguaje vehicular y hacia nuevos géneros emergentes como las popularizaciones médicas difundidas por Internet. Los resultados señalan que estos sujetos tienen una actitud positiva ante ambos; el inglés como lenguaje vehicular y ante estas popularizaciones médicas. Este estudio confirma que ambos grupos asumen la importancia del inglés como herramienta básica de comunicación en el campo de la medicina y del protagonismo de estos géneros electrónicos emergentes.

*Palabras clave:* actitudes de profesionales y estudiantes de medicina ante el discurso escrito y el inglés como lenguaje vehicular, nuevos géneros, sondeo.

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\* E-mail: [herrando@unizar.es](mailto:herrando@unizar.es)

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## Introduction

There is a growing interest in studying English as the international language of scientific dissemination (Burgess & Cargill, 2008; Ferguson, 2007; Hyland, 2009; Swales, 1997). The use of English as a lingua franca in the research sphere entails a major burden for non-native speakers of English when aiming to publish the results of their work in the international arena (Lillis & Curry, 2010; Mauranen, 2011). The role of English as the language for international academic and scientific exchange is currently well attested. Many insightful papers have dealt with this issue and with the potential consequences on other less powerful languages (Bosch, Villacastín, & Alfonso, 2002; Bosch, Villacastín, & Alonso, 2000; Fairclough, 2006; Hewings, 2002; Hyland, 2002; Swales, 1997; Tardy, 2004; among many others). As *producers* of scientific knowledge, many non-native English-speaking scholars struggle when writing in English for dissemination purposes. These speakers, members of different fields and discourse communities, may have never reflected on the role of English for Research and Publication Purposes (ERPP) or English as a lingua franca. However, they are greatly concerned about the need to publish and read literature in English related to their fields.

Needless to say this academic literature is encoded with discipline-related and genre-related linguistic and textual conventions. Concretely, in the field of medicine, Herrando-Rodrigo (2010, 2012, 2014)<sup>1</sup> claims that contributions to new surgery techniques, clinical daily practice or the impact of certain treatments, are rapidly published and easily

available thanks to the Internet every day (the online publications of international journals). Nonetheless, one may wonder whether or not doctors in Spain have enough time and mastery of English to read and process all the new medical information published almost every day. This idea inspired the present study (drawn from an innovative teaching project described in the Method section), which aims to explore whether practitioners and undergraduates have a positive attitude towards English as the vehicular language in the field of medicine. Besides, this paper also aims to observe whether both groups accept and read trustworthy medical electronic popularizations (hereafter Med-E-Pops) in order to keep up to date due to the impossibility of reading all the medical information contained in the copious numbers of new medical research articles (hereafter Med-RAS) published in English every day.

From the 17<sup>th</sup> century the urge to simplify findings so as to make science comprehensible to a non-specialist audience has been common practice (Gil-Salom, 2000). In such a process the media have promoted the adaptation of scientific information for a non-specialist audience. This practice has been problematized due to its information manipulation and lack of professionalism (see for instance Breeze, 2014; Fernández-Polo, 1995; Gallardo, 2005; Garcés Conejos & Sánchez Macarro, 1998; Giunchi, 2002; Guillén-Galve, 2001; among others). Nevertheless, these publications are gaining prestige not only among lay-readers but also among undergraduate students, language researchers and medical practitioners (Bondi, 2012; Calsamiglia & Van Dijk, 2004; Ciapuscio, 2003; Herrando-Rodrigo, 2014; Myers, 1991; Nwogu, 1991; Varghese & Abraham, 2004; Varttala, 1999).

This piece of research agrees with Bhatia's (2002, 2004) understanding of genre analysis and of what the goals of genre theory should be. In this scholar's view, genre theory has suffered from a lack of attention to

<sup>1</sup> These studies contribute to the project "*El inglés como lengua franca en los discursos especializados: espacios alternativos de producción lingüística y cultural a través del análisis crítico de los géneros*" [English as a lingua franca across specialised discourses: A critical genre analysis of alternative spaces of linguistic and cultural production] supported by the Spanish *Ministerio de Ciencia e Innovación* (FFI2013-37346) and it has been carried out within the framework of the research group InterLAE (*Interpersonalidad en el Lenguaje Académico Escrito* [Interpersonality in Written Academic Language]), financially supported by the *Diputación General de Aragón* (Spain).

the social and cognitive aspects of genre, which leads him to propose:

investigating instances of conventionalised or institutionalised textual artefacts in the context of specific institutional and disciplinary practices, procedures and cultures in order to understand how members of specific discourse communities construct, interpret and use these genres to achieve their community goals and why they write them the way they do. (Bhatia, 2002, p. 6)

In line with this proposal this piece of research provides an exploratory analysis of the text-external features, which include “situational as well as a number of socio-cognitive factors related to text-construction, interpretation, use and exploitation by expert members of the disciplinary cultures in question” (Bhatia, 2004, p. 123), that is, adopting an ethnographic approach—in this case a survey-based study—which for instance Connor (2004a, 2004b) also claimed for intercultural rhetoric studies.<sup>2</sup>

Some studies within English for academic purposes (EAP) and ERPP have taken an ethno-methodological approach to the study of texts and genres (Burgess & Ivanič, 2010; Flowerdew, 2001; Mur-Dueñas, 2007b; Pérez-Llantada, 2009), an approach which was desirable in this study in order to portray the situation of a small but still representative sample of practitioners and undergraduates who are exposed to academic English and who have a direct relationship, whether as lecturers or students, with the School of Medicine of the University of Zaragoza (Spain).<sup>3</sup>

<sup>2</sup> The present study also draws on previous studies based on L1 and L2 interference and the cross-cultural implications when reading and writing English for academic purposes. Many academic genres, such as research articles (Lorés-Sanz, 2011a, 2011b; Martínez, 2005; Moreno, 1997, 2004; Mur-Dueñas, 2007a, 2007b, 2010a, 2010b), abstracts (Burgess, 2002; Lorés-Sanz, 2006; Lorés-Sanz & Murillo Ornat, 2007; Martín Martín, 2002, 2003) or academic book reviews (Lorés-Sanz, 2009; Moreno & Suárez Tejerina, 2006; Suárez Tejerina, 2006) have been studied from a cross-cultural perspective.

<sup>3</sup> Since this study was the first incursion in the field for the author, future research aims to narrow this scope towards these previously mentioned ethno-methodological approaches.

## Method

In this paper, I explore the attitudes and perception of practitioners and undergraduates involved with the School of Medicine of Zaragoza (Spain) towards the dissemination of medical knowledge in English (in two different medical genres; Med-E-Pops and Med-RAS). In addition, this analysis focuses on the study of text-external features of research articles and popularizations (Bhatia, 2004). Following Bhatia (1999, 2004, 2008, 2011), written genres are considered versatile, dynamic constructs as members of the professional community exploit them to create new patterns. Hence, practitioners and undergraduates may turn to hybrid mixed forms of Med-RAS as Med-E-Pops, adaptations of medical research articles published on semi-specialized websites and addressed to a specialized and non-specialized readership that facilitates the comprehension and dissemination of medical knowledge in their everyday professional life for several reasons (such as lack of time for reading, mastery of English, etc.). This is why this study is based on the experiences of experts in the field of medicine and of university students—as future practitioners—in order to reflect on the potential difficulties of native Spanish-speaking medical informants who may be at different stages of their professional careers.

In addition, undergraduates were exposed to both genres (Med-RAS and Med-E-Pops) in the subject I taught<sup>4</sup> in order to participate in this survey because they might not have yet been exposed to a significant amount of medical literature written in English. The data were obtained from questionnaires that were personally distributed among practitioners and undergraduates. All the participants kindly and voluntarily participated in this survey and were informed of the survey purpose. The questionnaires (from practitioners and undergraduates) were slightly

<sup>4</sup> This subject was called *Inglés Científico para Medicina* [Scientific English for Medicine] (School of Medicine) University of Zaragoza, Spain.

different because I wanted to evaluate in depth students' self-reflections on the rhetorical strategies learnt in class (see Appendixes A and B).

### Data From Practitioners

One hundred and ten questionnaires were collected. The main requisite taken into account to define this sample was that the questionnaires collected were filled in by practitioners from different areas or medical specialities who should be involved in the theoretical and practical teaching of undergraduates in the School of Medicine at the University of Zaragoza and who should have a clinical post at hospitals. These

practitioners worked in one of the two University Hospitals of Zaragoza (*Hospital Clínico Universitario: Lozano Blesa* and *Hospital Universitario Miguel Servet*). Due to their double role—working at the hospital with patients and working as teachers in the School—they were used to reading medical literature in English. As shown in Table 1, the specialities of the practitioners who generously participated in this survey-based study were varied (20) and the average length of work experience was 17.82 years (with five years being the minimum and 40 years of experience the maximum [see Appendix c]). No gender parameters were taken into account.

**Table 1.** Practitioners' Specialities and Percentage Over the Total Number of Participants

	Number of participants by speciality	Percentage over total number of medical participants per speciality
Accidents and Emergency	15	13.6
Anaesthesia and Intensive Care	8	7.3
Cardiology	2	1.8
Dermatology	3	2.7
Haematology	1	0.9
Internal Medicine	8	7.3
Microbiology	4	3.6
Neurology	9	8.2
Obstetrics and Gynaecology	12	10.9
Ophthalmology	10	9.1
Otorhinolaryngology	2	1.8
Paediatrics	4	3.6
Paediatric surgery	2	1.8
Pharmacology	1	0.9
Physical Medicine and Rehabilitation	5	4.5
Pneumonology	5	4.5
Radiology	6	5.5
Surgery	5	4.5
Traumatology	2	1.8
Urology	6	5.5
<b>Total</b>	<b>110</b>	<b>100.0</b>

The number of questionnaires from each speciality differs due to the fact that not all the hospital services or departments had the same number of practitioners involved in teaching posts at University. In addition, as explained below, not all the practitioners who received these questionnaires participated in this survey. The questionnaire was written in English because the respondents were asked about their attitude towards this language. These questionnaires (both from practitioners and undergraduates) were designed in a simplified way so as to make the answering process comfortable and fast. It consisted of five questions distributed into four thematic sections. Most of these questions had multiple-choice answers so that practitioners could easily answer with just a tick (see Appendix A).

Four out of the five questions were the same for practitioners and undergraduates. The process of collecting the questionnaires took longer than expected since not many practitioners were willing to collaborate as they are bombarded with questionnaires from different institutions every week. Collecting the forms from the practitioners took me six months (from September 2010 to late February 2011) and the data analysis took this author almost a year.

### Data From Medical Undergraduates

The process of delivering and receiving medical undergraduates' responses was more controlled and was done during the course lessons which I taught in the School of Medicine at the University of Zaragoza. This subject was an optional course in the sixth year degree programme in medicine. To boost their academic writing abilities these undergraduates carried out several writing tasks dealing with EAP. As explained below, I asked them to write a Med-E-Pop from a Med-RA that I had previously selected and sent to them. This task was worth two points out of ten in their final mark. To observe and measure undergraduates' attitudes towards medical English

I asked them to fill in a questionnaire (Appendix B). Following statistician experts' orientation, 56 out of 93 completed questionnaires were selected. The confidence interval was high due to the characteristics of the random sample. This fact indicated that the final results would be similar with the sample taken as a whole in this study.

At the beginning of the term I had planned to get my students to write a Med-RA as part of their subject marks, something that was not welcomed by these undergraduates due to the level of complexity related to the task. Eventually, the undergraduates wrote a Med-E-Pop. Inspired by their fearful attitude towards reading and writing academic medical English, I reformulated my idea under the umbrella of an innovative teaching project, funded by *Vicerrectorado para la Innovación Docente* [the Vice-Rectorate for Teacher Innovation] at the University of Zaragoza. My students were at first reluctant not only to write academic English texts but also to read such texts in English. I then decided to create<sup>5</sup> working groups using MSN Hotmail (CienciasSaludIngles@hotmail.com) and I also designed an EduBlog (<http://medicalenglishinuse.blogspot.com>) to encourage their participation and as a follow-up of the writing process. All the 93 undergraduates registered in this subject actively participated in this project. Fifty-five percent of them evaluated the project as more than adequate and 45% as adequate (see Question 5 in Appendix B). None of the undergraduates showed any disagreement much less strong disagreement with this initiative.

As mentioned above, the task for undergraduates was to write a popularized text, following different guidelines given in class and helped by several resources such as our EduBlog and the 16-hour support that they could get from the virtual

<sup>5</sup> Project funded by *Adjuntía al Rector para la Innovación Docente* (University of Zaragoza). Project reference: PESUZ 10-05-028.

*teletutorials* of Hotmail chat (Messenger). When this written task was finished, my undergraduate students sent me their versions and I sent them the popularized text published on the Internet (published on *New York Times Health Guide* and *DocGuide*) and the evaluation questionnaire attached (Appendix B). They filled in the questionnaires and sent them back to me by email or returned them personally in class.

Undergraduates who were in my course had never read or heard about Med-E-Pops and therefore I considered it essential to get them to learn about Med-E-Pops due to their growing prestige among members of the medical discipline (Herrando-Rodrigo, 2014).

The timing for the collection of data was more controlled than in the case of practitioners. My undergraduates were given three months to complete their writing task: from November to January 2011. In January, I got all the questionnaires and the data analysis was carried out along that same year—2011.

### Results and Findings

This study reports on the attitudes of practitioners and undergraduates towards the role of English as the vehicle of communication. In addition, practitioners were openly asked in the survey whether they read Med-E-Pops rather than Med-RAS to keep up to date in the field of medicine for their accessibility (see Appendix A). As regards undergraduates, I also asked my students if working with these two genres (Med-RAS and Med-E-Pops) during the academic year 2010-2011 had been useful in the improvement of their linguistic competence (see Questions 3 and 5 in Appendix B). Besides, this paper aimed to observe whether both groups—practitioners and undergraduates, members of the same discourse community—distinguished the same linguistic and textual features in the medical genres under study. A reflection on the different conceptualisation of these genres by both Spanish-speaking groups concludes this section.

Practitioners were asked in Question 5 (Appendix A) if they had a positive attitude or perception towards English as the vehicle of international communication in the medical field: 93% of practitioners agreed and the remaining 7% disagreed.

As regards undergraduates, Question 4 (see Appendix B) aimed to get the same information regarding their attitude towards English as the vehicular language in medicine. In this case, 95% of undergraduates agreed and the remaining 5% disagreed. These results show how undergraduates' perception is even more positive than practitioners'.

In addition, as regards practitioners, Table 2 shows that 71 out of 110 practitioners claimed that they read Med-E-Pops to keep up to date.

**Table 2.** Do You Read Med-E-Pops?

	Frequency	Percentage
No	39	35.5
Yes	71	64.5
Total	110	100.0

From the 64.5% of the practitioners who affirmed they read Med-E-Pops, 26.4% of them admitted looking for the original Med-RA later because the Med-E-Pops raised their interest on the medical issue covered.

The undergraduates who participated in this study stated that they had difficulties with medical academic English and that the project of reading Med-RAS and writing a Med-E-Pop had helped them to improve their mastery of English and thus, had also improved their linguistic competence and positive attitude towards this vehicular language.

Among the different questions that both groups were asked, only 33.9% of the undergraduates were aware that there are significant differences between everyday English and academic English. It should be noted that undergraduates were asked to have informal

interviews or tutorials with the teacher to supervise their writing process while writing their essays. In these interviews 19 undergraduates claimed that their biggest difficulty lay in distinguishing general English from academic English due to their low command of English. The present study may highlight the fact that forcing them to deal with academic English has caused them to detect and reflect on their potential difficulties and at the same time helped them to look for solutions autonomously, as Figure 1 illustrates.

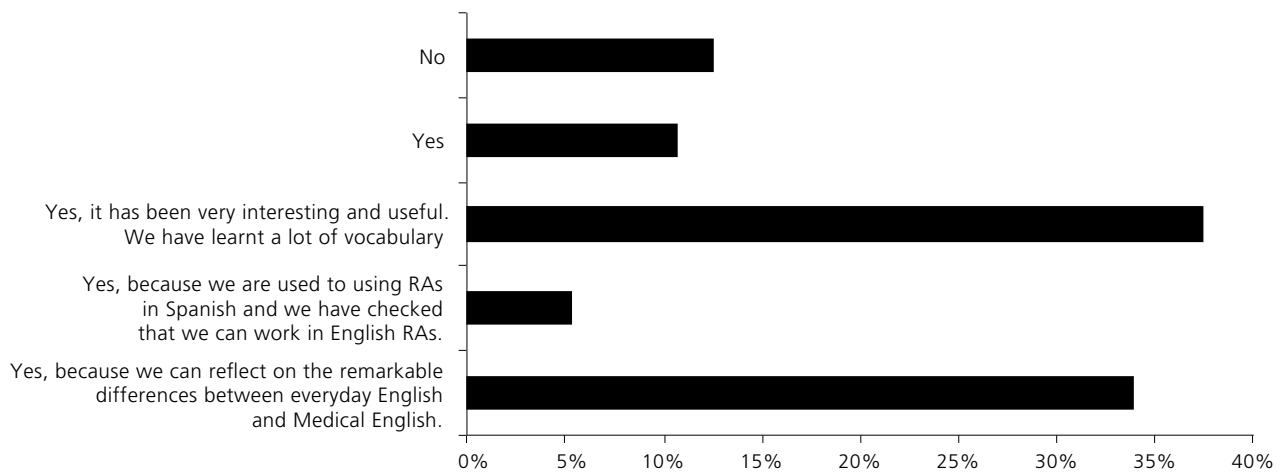
The affirmative answers to the questions visually displayed in Figure 1 were classified into four categories. The most frequent answers (37.5%) dealt with undergraduates' awareness of language acquisition. Undergraduates were able to self-evaluate their lexicogrammatical improvement. Another interesting finding is that 33.9% of the undergraduates agreed that it was the first time they had faced the task of transferring their medical knowledge from Spanish into general English and finally into academic English.

Figure 2 shows a contrastive study (practitioners and undergraduates) on the lexico-grammar used in Med-RAS and Med-E-Pops. For practitioners, the main differences between Med-RAS and Med-E-Pops lay in the use of the passive voice (20.9%) and the use of reported speech (23.6%). 20.9% of the prac-

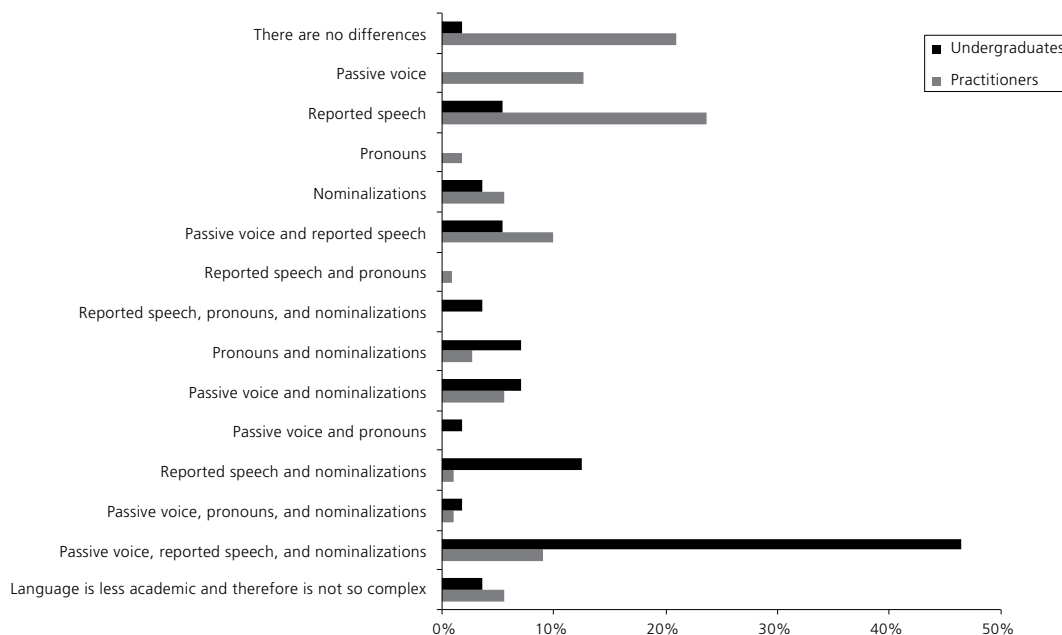
tioners claimed that they could not point out linguistic differences because they did not have enough knowledge of English grammar. As for undergraduates, 46.4%—almost half of the sample—claimed that the main linguistic differences lay in the use of the passive voice, reported speech, and nominalizations. 9.1% of the practitioners also selected this option.

Turning our attention to the potential purpose of Med-RAS and Med-E-Pops, it can be observed in Figure 3 that both practitioners and undergraduates stated that the purpose of each type of publication is different because the potential readership and types of publication differ. Few respondents (four practitioners and one undergraduate) claimed that there were no differences between these two genres in terms of purpose. Two practitioners affirmed that the purposes of Med-RAS and Med-E-Pops were different because the latter highlight the sensationalist aspects of the medical issue, as is displayed below. From their answers it can be inferred that the Med-E-Pops are rarely devalued as sources of information. This finding may contribute to the presupposition (Herrando-Rodrigo, 2014) that recent Med-E-Pops are not totally neglected or despised as reliable vehicles of knowledge dissemination.

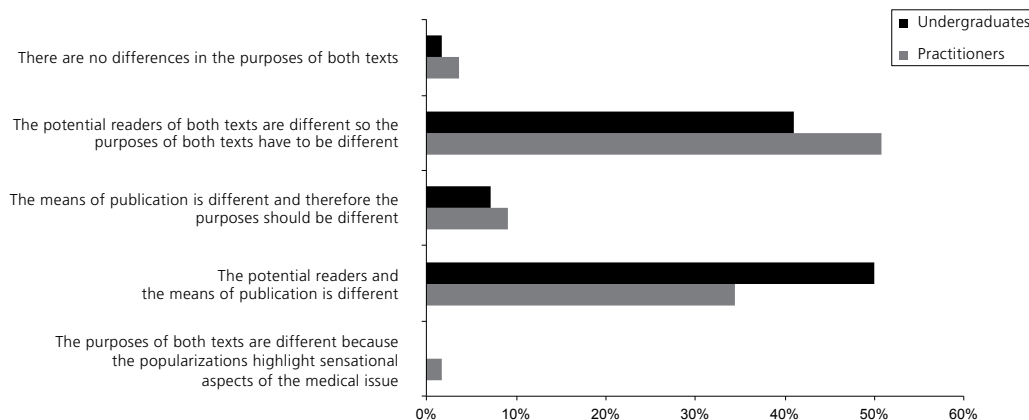
Figure 1. Usefulness of This Project



**Figure 2. Both Groups’ Contrastive Analysis on the Potential Linguistic Differences Between These Genres**



**Figure 3. Both Groups’ Opinions on the Differences Between Med-RAs and Med-E-Pops Purpose**

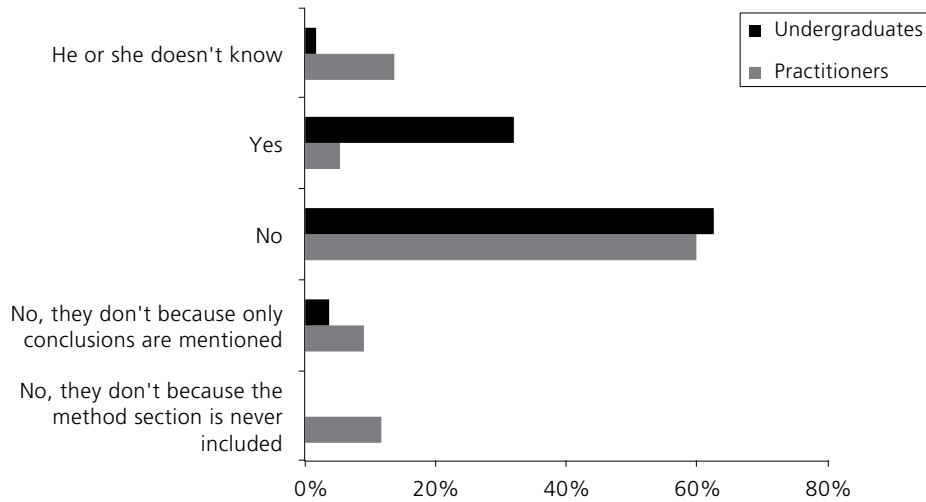


Regarding the differences of these genres’ information structure, it can be observed in Figure 4 that there are significant differences among undergraduates’ and practitioners’ answers. 13.6% of the practitioners did not point out any differences in terms of structure (between Med-RAs and Med-E-Pops) other than length. 11.8% of the practitioners stated that Med-RAs and Med-E-Pops have a different structure because Med-E-Pops never include the

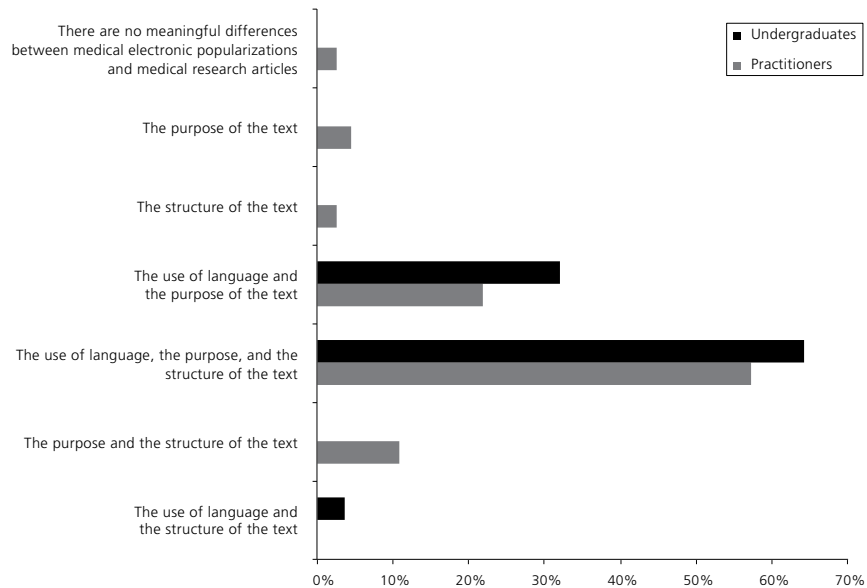
Method section. This section is indispensable for any medical researcher in order to validate the nature of any study. Although practitioners’ perceptions differed from undergraduates’ as far as the structure was concerned, the views of undergraduates (62.5%) and practitioners (60%) largely coincide when simply stating that the two genres do not have the same structure. All the undergraduates who have specifically worked with both genres for their final



**Figure 4. Med-E-Pops have the same structure as Med-RAs?**



**Figure 5. Both Groups' Answers on Differences Observed Regarding Med-RAs and Med-E-Pops Genre Differences**



task answered that there are structural differences between the two text types.

It can be observed in Figure 5 that while undergraduates' answers centred on just three factors that differentiate the genres of Med-E-Pops and Med-RAs, practitioners *produced* several potential features that characterise Med-E-Pops and Med-RAs

as different genres. Hence, the views of practitioners (57.3%) and undergraduates (64.3%) from the field of medicine largely coincide when pointing out the reasons why these two genres differ.

The reasons both groups give are that each genre (Med-E-Pops and Med-RAs) necessarily differs in terms of language use, communicative purpose, and

text information structure. In general terms, both practitioners and undergraduates conceptualised these two genres as completely different genres.

### Conclusions

As is widely known, English has replaced Latin, Arabic, and Greek as the globally recognised language of scientific communication.<sup>6</sup> It should be pointed out that the widespread use of English as a *lingua franca* in the research field entails major burdens for non-native speakers of English when aiming to publish the results of their work in the international arena in most disciplines (Lillis & Curry, 2010; Mauranen, 2011).

By the same token, English nowadays plays a part in most of the language planning and educational curricula all over the world. However, regarding foreign language learning, older generations were educated under the influence of French or German. This fact makes scholars invest “extra time and effort for the production of less than optimal written text” (Ferguson, 2007, p. 33).<sup>7</sup> Therefore, the effective use of English rhetorical conventions and the way they are realised in language (language choice and language use) deserve thorough exploration since for instance they constitute the focus of study in EAP. From the beginning of the 1980s there have been scholars such as Maher (1986) who have openly claimed that English

is the international language of medicine. Hence, this situation of potential difficulties and negative attitudes towards the use of English as the vehicular language in medicine on behalf of Spanish practitioners and undergraduates inspired this exploratory piece of research.

Subjects (practitioners and undergraduates) who participated in this survey share a highly positive perception and attitude towards English—as other studies such as Orna-Montesinos (2013) have also observed—as the almost unique and widely accepted vehicle of communication in the field of medicine. In addition, this survey also raises awareness of the importance of English as the language of scientific exchange and of the emergence of web-mediated genres in the field of medicine.

Needless to say, practitioners are aware of the difficulties they have when writing medical discourse. Therefore, we teachers should help students to consolidate the life-long learning of this essential tool more efficiently. Undergraduates, as future practitioners, should be trained with all the necessary tools required of medical practitioners in today’s medical practice and therefore communicative interaction. This pedagogical implication should also be taken into account when dealing with practitioners’ training programmes in Spain.<sup>8</sup>

Another research aim of this study was to observe how practitioners and undergraduates conceptualised Med-RAS and Med-E-Pops. Practitioners and undergraduates are well aware of the different purposes, textual conventions, audiences, and types of publication of these two genres and therefore about both genres’ differences. Hence, one may wonder whether undergraduates should be exposed to or even

<sup>6</sup> Many studies related to communication have been conducted from different perspectives: sociological perspective in its social setting (Hymes, 1964), language as a social action under the umbrella of linguistic philosophy (Austin, 1962; Grice, 1975; Searle, 1969), classroom language interaction and management (Sinclair, 1972), communicative purpose (Candlin, Bruton, Leather & Woods, 1981), communicative competence (Canale, 1983), and intonation and feedback in English as a foreign language classrooms (Hewings, 1995), to name just a few. Nevertheless, for the purpose of this piece of research it was essential to focus on the analysis of discourse to be able to: “Explain the relationship between what we say and what we mean, and understand, in a particular context” (Paltridge, 2000).

<sup>7</sup> However, this native/non-native distinction has been criticised because the degree of experience or expertise in academic publications and proficiency in certain kinds of academic written discourse in English is what counts and helps when writing successfully—and therefore when being published and read.

<sup>8</sup> Moreover, English teachers have to be aware of this situation not only in ESP and EAP courses but also in courses related to translation or journalism since these professionals will be involved, sooner or later, with the dissemination of medical findings in these newly-born web-mediated genres.

taught about the different text types or genres *hosted* and emerging in their medical community-domain. Myers (1991) notes that: "Scientists learn the rhetoric of their discipline in their training as graduate students and postdoctoral students, but they relearn it every time they get the referees' reports on an article or the pink sheets on a proposal" (p. 61). However, according to this survey report, in the Spanish system undergraduates are not exposed to these emerging genres such as Med-E-Pops that could both keep them up to date and train them to disseminate their own findings in different reliable publications.<sup>9</sup>

This piece of research, together with Berkenkotter and Huckin (1995), Miller (1994), or Tardy (2003), also suggests that writers gain knowledge of the genre network by having access to the practice community and colleagues' interaction. Thus, practitioners and undergraduates learn how to address the discourse communities of different medical genres by being exposed to these given genres. Hence, this study suggests that undergraduates at least should be taught how to be communicatively successful with Med-E-Pops and with all the emerging electronic genres, not only in order to have rapid access to medical information but also to acquire mastery in disseminating their findings through different channels and in different ways (as they shall have to do when reformulating medical technical procedures to a lay patient in a surgery or consulting room in Spain or elsewhere).

9 For instance, Devitt (1991) in her work on genre sets based on a genre study of tax accounting affirms that:

The education of aspiring accountants emphasizes learning what these documents contain and how to use them. The students are being trained in the profession's epistemological assumptions, that these documents are the source of all knowledge and authority. However, beginning accountants must also learn how that epistemology translates into their won texts. They must learn that different types of reference to the tax codes are appropriate in different genres . . . learning the translations of this epistemology to other texts, learning the techniques of reference for different genres and rhetorical situations, may well be a major learning task of the junior accountant and a crucial mark of membership in that professional community. (p. 350)

To conclude, the goal of this study was to explore the attitudes and perceptions of Spanish practitioners and undergraduates towards medical discourse written in English as the main communicative tool or vehicular language in the medical field. The perspective emerged from this study ratifies the essential role of English as the international language of scientific exchange. In addition this survey raises awareness of the importance of both, the essential role of English as the language of exchange and communication in the international medical arena and about the emergence of web-mediated genres in the field of medicine. This circumstance should cause us teachers to reflect on the importance of our role as language mediators since our students will need English as a vehicular language of communication. That is, we should awaken and foster a positive attitude towards not only English but also towards the new scenario of today's communication so as to aid Spanish-speaking professionals' communicative competence consolidation.

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### About the Author

**Isabel Herrando-Rodrigo** is an English teacher at Centro Universitario de la Defensa, Zaragoza, Spain. She holds a PhD in Applied Linguistics and is a member of the InterLAE research group ([www.interlae.com](http://www.interlae.com)). Her published papers have appeared in Cambridge University Press, *Miscelánea*, *Tropelías*, and *Journal of the English for Specific Purposes Special Interest Group*.

## Appendix A: Questionnaire Answered by Practitioners

Before beginning, please write your

Field/Speciality \_\_\_\_\_ and years of experience as practitioner \_\_\_\_\_

1. How often do you read medical articles written in English?
2. Do you read medical popularizations published in English on the Internet (e.g., *New York Times Health Guide*, *Doc Guide*, etc.)? If so, please mention the electronic journals you read and why.
3. If you read a medical popularization and you are interested in the topic covered, do you read the corresponding research article?
4. If you think that research articles differ from popularizations, what do you think the differences are?

**Use of language.** Have you observed any differences? Tick the ones you have observed:

- Passive voice
- Reported speech
- Pronouns
- Nouns
- Others: .....

**Purpose.** Is the content expressed differently in medical research articles and in electronic popularizations? If so, could you identify the reasons by ticking the ones you have observed:

- Different audience (different readers)
- Different means of publications
- Others: .....

**Structure.** Experimental medical research articles are generally structured following the so-called IMRAD pattern (Introduction, Methods, Results and Conclusions or Discussion).

Do medical popularizations have the same IMRAD structure?

5. Do you have a positive attitude or perception towards English as the vehicle of international communication?



## Appendix B: Questionnaire Answered by Undergraduates

1. How often do you read medical articles written in English?

Why?

2. Do you find medical research articles different from medical popularizations?
3. If so, what do you think the differences are?

**Use of language.** Have you observed any differences? Tick the ones you have observed:

- Passive voice
- Reported speech
- Pronouns
- Nouns
- Others: .....

**Purpose.** Is the content expressed differently in medical research articles and in electronic popularizations? If so, could you identify the reasons by ticking the ones you have observed:

- Different audience (different readers)
- Different means of publications
- Others: .....

**Structure.** Experimental medical research articles are generally structured following the so-called IMRAD pattern (Introduction, Methods, Results and Conclusions or Discussion).

Does your popularization have the same IMRAD structure? If so, have you organised information in the same way? (Beginning with information regarding the RA Introduction, then the RA Methods, Results and Discussion).

4. Do you have a positive attitude or perception towards English as the vehicle of international communication?
5. To conclude, have you found this project useful?

**Appendix C: Percentage of Junior/Senior Medical Participants**

<b>Range of years of experience of medical informants</b>	<b>Number of participants per age range</b>	<b>Percentage over the total number of participants</b>
1-10 years	30	27.27
10-20 years	35	31.81
20-30 years	26	23.63
30-40 years	19	17.27