

MOTIVATIONS AND ATTITUDES OF SPANISH CHEMISTRY AND ECONOMIC RESEARCHERS TOWARDS PUBLICATION IN ENGLISH-MEDIUM SCIENTIFIC JOURNALS*

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ABSTRACT

In our current globalised world of scientific and academic practices, research within English for Academic Purposes (EAP), and more specifically, English for Research Publication Purposes (ERPP) has undergone an exponential upsurge. The present study is part of a wider research project, led by the ENEIDA research group, aiming among other things at exploring Spanish scholars' attitudes and experiences of research publication by means of a large online questionnaire sent to academics from five Spanish universities and institutions. We here report on the answers provided by Chemistry and Economics' scholars as regards attitudes and motivations to use English for publication purposes. Relevant differences between them reveal different degrees of internationalization for Chemistry and Business scholars as well as different disciplinary idiosyncrasies and expectations.

KEYWORDS: English for research publication purposes, Spanish, Chemistry academics, Economics academics, academic writing, attitudes.

RESUMEN

En el contexto actual de prácticas científicas y académicas globalizadas, la investigación del inglés para fines académicos y, de forma más concreta, del inglés con fines de publicación ha crecido de forma exponencial. Este estudio se integra dentro de un proyecto de investigación llevado a cabo por el grupo ENEIDA cuyo objetivo, entre otros, es explorar las actitudes y experiencias de los académicos españoles con relación a la publicación de su investigación utilizando un cuestionario en línea que se envió a académicos de cinco instituciones y universidades españolas. Presentamos aquí las respuestas de las disciplinas de Química y Económicas por lo que se refiere a actitudes y motivaciones a la hora de utilizar



el inglés como lengua de publicación de la investigación. Las diferencias entre estas dos disciplinas revelan diferentes grados de internacionalización así como diferentes expectativas e idiosincrasias disciplinares.

PALABRAS CLAVE: Inglés para fines de publicación, español, académicos de Química, académicos de Económicas, escritura académica, actitudes.

1. INTRODUCTION

In recent years there has been an upsurge of research within English for Academic Purposes (EAP), and more specifically, within English for Research Publication Purposes (ERPP) (see Cargill and Burgess), possibly as a result of the increasing urge academics have, especially in given disciplinary fields, to get the results of their research published in international English-medium publications to gain recognition, get promoted and receive academic rewards. This is specially a hard endeavor for non-native speakers of the language, who need to become proficient in English academic literacies and undergo a process of enculturation in the international disciplinary community through English.

The ultimate goal of EAP and ERPP is to design and create materials and guidelines to help novice and non-native academics to become successful members of the international disciplinary community networks. It is believed that the use of English as a vehicle for communication in academia varies significantly across cultural and disciplinary contexts. As highlighted by Petersen and Shaw in their analysis of academics' discursive practices at Aarhus School of Economics in Denmark, there are many contextual factors that affect the degree of internationalization and of "academic anglicisation"¹: it "varies widely across disciplines, genres and countries" (259) and also as a result of multiple contextual particular variables. That is why it is necessary to determine those disciplines and contexts in which English is more intensely used and required for scholars and, in which, as a result, there are further English language training needs. It is also important to explore their

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Despite current ELF (English as a Lingua Franca) postulates (Mauranen, "Hybrid," "English"; Seidlhofer; Jenkins) discursive practices and policies in academia still promote to a great extent the use of English as encoding the Anglophone rhetoric in international communication. According to Jenkins' (934): "despite the findings of ELF research, English language policies and practices around the world are still—probably even more widely than before—premised on the 'need' for all to use native academic English" (934).



attitudes towards using different languages in the dissemination of new scientific knowledge to gain a deeper insight into their discursive practices and establish stronger connections between textual and discourse analysis and cultural and professional identities (Bhatia, *Worlds*).

Besides some textographic analyses in several contexts, such as the North-American (Swales), and the Danish (Petersen and Shaw), a number of recent studies have focused on the use of English especially for publication purposes in different contexts, such as the Polish (Duszak and Lewkowicz), or the Chinese (Flowerdew and Li). In the Spanish context, the work by Fernández Polo and Cal Varela, Pérez-Llantada et al., and Ferguson et al. have allowed us to learn about the needs Spanish scholars have with respect to the use of English in academic interactions at Spanish universities. Thus, based on a survey, Fernández Polo and Cal Varela report on the use made of the English language by the teaching and research staff at the Universidad de Santiago de Compostela, in the North-West of Spain. They find that there are great differences in the use of EAP among different areas and disciplines, that Spanish researchers strongly demand training, and that researchers perceive their oral competences to be much lower than their written ones. Further, respondents reported lacking institutional support and having to find help in their learning of academic literacies outside university. Finally, their attitudes towards the use of English in academia are overall positive. Similarly, Ferguson et al.'s work focuses on the attitudes of 300 staff members at the Universidad de Zaragoza, in the North-East of Spain. Given their non-native condition, they mostly feel at a disadvantage when participating in international networks through English but, nevertheless, they see the use of English for international communication as favourable and positive. Pérez-Llantada et al. focus on the use made of English by a group of lecturers in the hard sciences and in the social sciences at the Universidad de Zaragoza. Based on interviews, Pérez-Llantada et al. report on two groups of researchers' attitudes towards the dominance of English in the spread of scientific knowledge, their greatest difficulties when drafting RAs in English and their views on what type of support they should receive.

The ENEIDA group (Equipo Nacional de Estudios Interculturales sobre el Discurso Académico) sought to provide a more general overview of the use of English and Spanish for research purposes in the Spanish context. Unlike previous studies, which are based on a single institution, our aim was to find insights from 5 Spanish institutions: the Spanish Consejo Superior de Investigaciones Científicas (CSIC), Universidad de León, Universidad de La Laguna, Universitat Jaume I and Universidad de Zaragoza. Overall findings regarding Spanish academics' language competence, preferences to publish in one or the other language, publication experiences, and writing strategies have been already reported with reference to various disciplines (Burgess et al.; Gea-Valor et al.; Martín et al.; Moreno et al., "Spanish Researchers Publishing," "Spanish Researchers' Perceived"; Mur-Dueñas et al.; Rey-Rocha et al.).

It is the aim of this paper to cast some light on the Spanish scholars' attitudes and motivations when it comes to publishing the results of their research in international English-medium journals. The focus of the present study will be



Spanish scholars in two disciplinary contexts, Chemistry and Economics, and their views and attitudes towards these practices. We will analyze the responses of 231 Spanish Chemistry scholars and 74 Spanish Economics scholars to a questionnaire created by the ENEIDA group, consisting of 37 questions, with the overall goal of understanding current needs and strategies of research staff at Spanish institutions with regard to the writing and publishing of RAs in scientific journals.

The research questions which the present study explores are the following:

- What is the self-perceived competence of Chemistry and Economics scholars with regard to their performance in the use of general English?
- Is this self-perceived competence any different with regard to academic English?
- Is this perceived self-competence any different between the two disciplinary communities?
- Do Spanish Chemistry and Economics scholars use Spanish and English for publication purposes to the same extent? Are there any differences in the practices of both disciplinary communities?
- Why do they attempt publication in English/Spanish? Are there any differences between the two communities in the reasons they find?
- Which factors influence their decision to publish (or not) in English/Spanish? Do different factors influence the two communities?
- Do they wish to publish in English/Spanish?

2. METHODS

The data to give answers to these research questions were drawn from a larger study and database created by the ENEIDA research team. A large-scale online questionnaire (Moreno et al., “Eneida”) was designed and administered in late 2010 to researchers at four Spanish universities (the Universidad de La Laguna, Universidad de León, Universitat Jaume I, and Universidad de Zaragoza) and a research institution in Spain (CSIC—Consejo Superior de Investigaciones Científicas). Information about the methodological procedures used in its design, validation and implementation is offered in detail in Moreno et al. (“Spanish Researchers Publishing,” “Spanish Researchers’ Perceived,” “Eneida”).

The questionnaire was sent to researchers from all fields, among them, Chemistry and Economics. A total number of 8,794 Castilian Spanish-speaking academics received the questionnaire, and 1,717 replied (19.6% response rate). Responses were then classified according to the UNESCO code they used to identify their main area of research interest. The number of respondents from the fields under study here were the following: 231 from the field of Chemistry and 74 in Economics, totaling 305.

The questionnaire consisted of 6 sections including a total of 37 closed and open-ended questions. The sections focused on the following issues:

1. Personal and professional information



2. Competence in the use of Spanish and English
3. Language choice for research publication: attitudes and motivations
4. Experience with publishing RAs
5. Current strategies for writing for publication in scientific journals in English
6. Training in writing RAs for publication

The present study is based on the answers provided to 8 questions of the questionnaire which mainly focused on the attitudes and motivations Spanish Chemistry and Economics scholars have towards writing research in English (and also Spanish) for publications purposes.

3. RESULTS AND DISCUSSION

3.1. PERSONAL AND PROFESSIONAL INFORMATION

To understand the attitudes and motivations that Spanish members of two distinct disciplinary communities have towards research publication in English-medium scientific journals, it is first required to depict a personal and academic profile of those who replied to the questionnaire, as this information can foster interpretation of the answers. Thus, aspects such as gender, age, academic position, years of service since completion of doctoral thesis and affiliation were firstly explored, giving the following results.

As regards gender, more males (almost 58.68%) than females (41.35%) answered the questionnaire in the two disciplines (see Table 1). If we take the answers to this questionnaire as representative, we may infer that in Economics and Chemistry there are more men than women academics. It is also interesting to note that the average number of replies by men and women in the two disciplines was very similar, showing that there are not significant gender differences between the two fields:

TABLE 1. GENDER DISTRIBUTION OF RESPONDENTS ACCORDING TO DISCIPLINE.

	Chemistry (n.231)	Economics (n.74)	Average
Males	58.4	59.4	58.7
Females	41.6	40.6	41.3

The average age of those who replied to the questionnaire was also very similar: 43 in the case of Economics and 46 in the case of Chemistry, although the level of dispersion was rather high.

However, their academic profile showed certain differences. As shown in Table 2 below, there are extreme differences in the type of institution our respondents are affiliated to. A significant number of answers in the field of Chemistry came from academics working at the CSIC, whereas in the case of Economics the



percentage of replies from scholars affiliated to the CSIC was lower, in accordance with the lower number of academics from Economics working at this institution.

The fact that academics affiliated to the CSIC are not required to teach means that they can devote more time to research. This, in our view, may have an impact on the interpretation of results as regards the factors intervening against, or in favour of, their decision to publish in English, or in the interpretation of other results, such as the number of RAs published (see below).

TABLE 2. ACADEMIC AFFILIATION OF RESPONDENTS.

	Chemistry (n. 231)	Economics (n.74)
Universities	16.5	94.6
CSIC	83.5	5.4

This professional and academic profile might also explain the differences found in their length of time as doctors, not explained by their average ages: whereas the average span of time for Chemistry academics is 17 years since they got their PhD, it is 10 years for Economics scholars.

As regards their professional status and the posts they occupy in their institutions, slight differences are found in terms of seniority of the respondents according to discipline. Thus, 80.1 respondents were tenured staff in the field of Chemistry and 66.3 in the case of Economics.

The different percentages in the seniority of the informants in the two disciplines under discussion can also contribute to the explanation of the differences found in some of the results, like the number of RAs published discussed below.

In spite of the differences, there is a certain degree of coincidence in the profile of those who replied to the questionnaire, and who, consequently, were more motivated by the topic it deals with (attitudes, motivations and challenges to/of publication practices): it is a researcher fully involved in his/her academic career with a few years' experience in research publication.

3.2. SELF-PERCEIVED COMPETENCE IN THE USE OF GENERAL AND ACADEMIC ENGLISH

A second thematic strand we needed to explore before focusing on the academics' opportunities and motivations to write for publication purposes was how they perceived their competence in the use of both general and academic English with regard to the written skills (writing and reading).

A scale of 1 to 5 was used (from 1= very low, to 5 = very high), yielding the following results. With regard to General English, the percentages were the following:



TABLE 3. SELF-PERCEIVED LEVEL OF COMPETENCE IN GENERAL ENGLISH.

	CHEMISTRY (N.231)	ECONOMICS (N.74)
WRITING		
Very low-low	6.9	25.0
Medium	26.0	35.1
Very high-high	67.1	41.9
READING		
Very low-low	1.7	1.4
Medium	7.4	18.9
Very high - high	90.9	79.7

TABLE 4. SELF-PERCEIVED LEVEL OF COMPETENCE IN ACADEMIC ENGLISH.

	CHEMISTRY (N.231)	ECONOMICS (N.74)
WRITING		
Very low-low	6.5	27.0
Medium	18.2	32.4
Very high-high	75.3	40.5
READING		
Very low-low	0.9	4.1
Medium	1.7	8.1
Very high - high	97.4	87.8

The most significant differences in the perception academics have in the two disciplines of their competence in reading and writing English lie in the productive skill of writing, both in general and academic English, with Chemistry scholars perceiving themselves as more skilled than Economics academics. When contrasting general and academic English, Chemistry scholars also see themselves as having fewer difficulties than Economics academics.

Also interesting is the fact that Chemistry scholars perceive themselves as more skilled in Academic English, both in reading and in writing, than in General English. This finding may point to the high internationalization level of the discipline of Chemistry, which demands the mastering of the language for academic purposes.

The fact that Chemistry academics are more self-confident than their peers in their use of English for general and academic purposes might be the result of having been more successful at publishing English RAs in international journals and having a longer research publication experience than their Economics peers, as reported in the answers to other parts of the questionnaire (Mur-Dueñas et al.).

When compared with the results yielded in other disciplines, some further differences emerge. This is the case when the contrast is established with three disciplines in the Social Sciences (Education, Psychology and Sociology), as reported



in the study by Gea-Valor et al. In these disciplines, the rate of self-perceived level of competence in General and Academic English reading was still high, but not as high as in the disciplines in the present study. Thus, the results reported for the Social Sciences for the “very high-high” axis is 65.3%, much below the 90.9% reported by Chemistry scholars and still below the 79.7% yielded by Economics scholars, also a Social Science discipline.

Results are even more striking when writing is in focus. The results yielded in the above mentioned study for disciplines within the Social Sciences are very different from the ones gathered in Chemistry and Economics. Table 8 captures comparative percentages for all the disciplines under discussion here:

TABLE 5. SELF-PERCEIVED VERY HIGH-HIGH LEVEL OF COMPETENCE IN WRITING GENERAL/ACADEMIC ENGLISH.

	CHEMISTRY (N.231)	ECONOMICS (N.74)	EDUCATION, PSYCHOLOGY AND SOCIOLOGY (N.III) (GEA VALOR ET AL.)
Writing General English	67.1	41.9	28.7
Writing Academic English	75.3	40.5	23.8

Similar results to those in Gea-Valor et al. for academic writing in the Social Sciences are provided and discussed for the discipline of History in Burgess et al.: a percentage of 25.8% historians perceive themselves as having a very high or high competence when writing research in English.

These data reveal interesting differences among disciplines within the same division (i.e. Economics vs Psychology/Education/Sociology/History), showing that there are other factors (e.g. scope of research and professional interests, degree of internationalization) which may be determinant for the aspects under study.

3.3. MOTIVATIONS FOR PUBLISHING: VIEWS AND ATTITUDES

3.3.1. *Choice of Language of Publication: Number of RAs in Spanish/English*

In order to explore the motivations Chemistry and Economics scholars have to publish in English, a series of questions were designed and included in the questionnaire, which had to do with their number of publications, the factors which influenced their decision for publishing in either language, or the factors that had deterred them from doing so.

To analyze and interpret the results corresponding to these questions, we firstly considered relevant to explore to what extent they use their native language, Spanish, in comparison with English for research publication purposes. Here again some differences are observed between the two disciplines (see Figure 1 below):



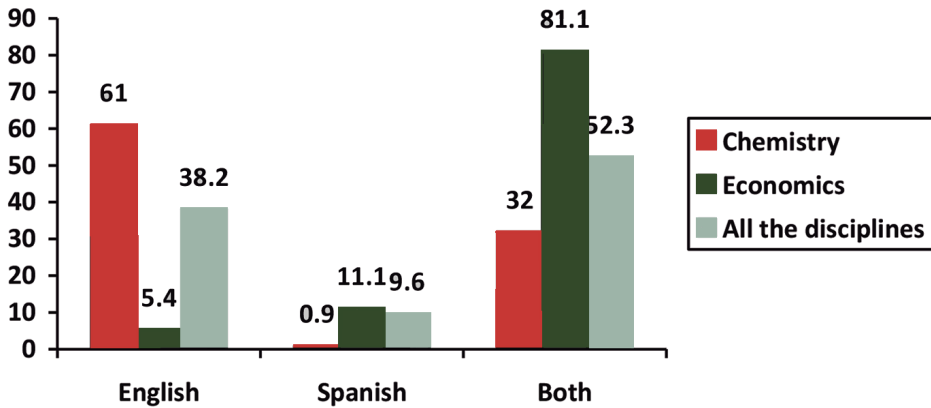


Figure 1. Percentages of respondents who use English and/or Spanish as languages of publication.

With regard to Chemistry, out of 231 replies, only 2 scholars answered they published only in Spanish (0.9%), vs. 141 (61 %) who published only in English, and 74 (32%) who do it in both languages. Fourteen (6.1%) published in other languages like French, German or Catalan.

In Economics, out of 74 replies, 8 scholars answered that they published only in Spanish (11.1%) and 4 stated that they only did in English (5.4%). Only 2 informants (2.7%) had never published in any language.

When contrasted with the results gathered for all the disciplines under study (Martín-Martín et al.; Moreno et al., “Spanish Researchers’ Perceived”), we observe that the use of English as a single language of publication is considerably above average (61%) in the case of Chemistry. As a result they publish far fewer RAs in Spanish (the mean number of articles they have published in Spanish as a corresponding author over the last 10 years is 1.2), compared not only to their Economics peers (8.9) but also to the general average taking all the disciplines into account (6.1). The number of scholars who publish in both languages is also comparatively low (32%), below the average for all the disciplines (52.3%) and much lower than in the discipline of Economics (81.1%).

Economics respondents confirm a different behavior: their rate of publication in English only is very low if compared to Chemistry informants (for whom English seems to be “the” language of publication), and also low if contrasted with the average in all the disciplines. This does not mean, however, that Economics scholars do not publish in English, as an overwhelming 81.1% state that they publish both in English and Spanish, a percentage far higher than the one for Chemistry and also than the average for all the disciplines. Moreover, Spanish as the only language of publication does not seem to be a general option for them (only 11.1%)

A possible explanation for these results might have to do not only with their “degree of internationalization,” that is, with considering Chemistry as a “fully internationalized publication culture” and Economics as a “partially internationalized”



one (Petersen and Shaw), but also with the type of research they carry out and the site of publication for such research. Even though there are no Spanish journals in the disciplines under analysis included in the JCR (Journal Citation Report), Spanish Economics scholars publish some of their research results in Spanish-medium journals, which may be due to two possible reasons: 1) the local nature of some of their studies, which may not be accepted in international English-medium sites of publication and 2) the applied character of their research, which may lead them in some cases to publish the outcomes of their research in sites with a professional (besides academic/scholarly) audience, which tend to be published in Spanish.

The number of RAs each disciplinary community published in each language was also analyzed (see Table 10 below). The time span for these data was the ten-year period before December 2010, when the questionnaire was administered.

TABLE 6. AVERAGE NUMBER (AND LEVEL OF DISPERSION OF THE MEDIAN) OF RAS WRITTEN IN ENGLISH AND IN SPANISH PER RESPONDENT.

	CHEMISTRY (N.231)	ECONOMICS (N.74)
Ras in English	25.57±32.57(0-200)	9.14±10.72(0-50)
Ras in Spanish	1.23±2.96(0-20)	8.98±10.63(0-61)

In Chemistry we observe that the average number of RAs written in English (25.57) is much higher than in Spanish (1.23). What is more interesting, though, is that whereas there is a homogeneous behavior with regard to the publication in Spanish (many academics in the field do not publish in Spanish and, if they do, the average number of RAs is very similar), in the case of English, there is a high level of variation with regard to the number of RAs published (hence the level of dispersion of the median, 32.57 in English vs 2.96 in Spanish).

As regards Economics scholars, the average number of RAs written in English (9.14) is very similar to that of RAs in Spanish (8.98). With respect to the level of variation, and in contrast to what happened with Chemistry scholars, their behaviour seems to be very homogeneous, as the median for both cases (publication in English and in Spanish) is very similar (5 and 6 respectively).

These results are in line with the previous findings about their language of publication. Economics scholars seem to be combining English and Spanish as their research languages. Moreover, this behaviour is apparently very homogeneous among the members of the discipline who seem to be evolving in the same direction and at the same pace, something which does not seem to be the case in Chemistry, where the level of dispersion is very high and therefore very revealing. It may also be the case that, although multiple authorship is usually the norm in both disciplines, the number of signing scholars is much larger in Chemistry (usually 5 to 8 authors per article) than in Economics (usually 2 to 3 authors per article), which may result in a varying production rate but a higher one in any case.



3.3.2. Factors Influencing Their Decision to Publish in English-Medium Journals

In order to explore the motivations for using English for research publication purposes, informants were asked about the factors which influenced their decision to publish in English. Applying a scale of 1 to 5 (from 1= not at all, to 5 = a lot), the results revealed an overall coincidence between both disciplinary communities with respect to the factors that were most influential. This was also coincident with the factors pointed out by all the respondents to the questionnaire, from all the disciplines (Rey-Rocha et al.), and, as was expected, by respondents from the Social Sciences (Gea-Valor et al.), History and Psychology (Burgess et al.) and Medicine (Martín et al.). In all the cases the factors that encourage scholars to publish internationally in English are those which have to do with promotion, recognition and professional projection, as the table below shows:

TABLE 7. MAIN FACTORS SIGNALLED BY INFORMANTS AS MOST INFLUENTIAL AT THE TIME OF DECIDING TO PUBLISH IN ENGLISH.

	CHEMISTRY (N.231)	ECONOMICS (N.74)	ALL THE DISCIPLINES (N. 1717) (REY-ROCHA ET AL.)
My desire to communicate the results of my research to the international scientific community	4.80	4.41	4.7
My desire for my research work to be recognized	4.58	4.45	4.5
My desire to meet the requirements for professional promotion	4.14	4.61	4.2
My desire to get cited more frequently	4.02	4.08	4.0

As can be inferred from the data above, the average answers in each case are interestingly similar with regard to Chemistry and all the other disciplines, with the desire to communicate the results of the research internationally marked as the most influential factor. However, Economics academics indicate two other factors as even more influential: the desire to meet the requirements for professional promotion and the desire for their research work to be recognized. It seems to be the case that, whereas Chemistry researchers have long assumed that English is the language to be used as the language of dissemination of research results, their *lingua franca*, Economics scholars attempt publication in English prompted by an outer pressure to publish in this language (e.g. professional promotion), and not so much out of an inner conviction that English is “the” vehicle of communication for science.

With respect to the factors that influence the least, Chemistry and Economics scholars also coincide in signalling those which have to do with more personal rewards (economic, but also of skills improvement). In this case the results are also very similar to those gathered for all the disciplines.



TABLE 8. MAIN FACTORS INDICATED BY INFORMANTS AS THE LEAST INFLUENTIAL AT THE TIME OF DECIDING TO PUBLISH IN ENGLISH.

	CHEMISTRY (N.231)	ECONOMICS (N.74)	ALL THE DISCIPLINES (N. 1717)
My desire for the continued existence of scientific journals in English	1.97	1.67	1.96
My assessment of my ability to write up the results of my research in English	2.45	2.02	2.45
My desire to improve my writing ability in English	2.57	2.61	2.6
My desire to communicate the results of my research to the local community	2.96	2.52	2.58
My desire to increase my chances of receiving a bonus payment	2.67	2.75	2.57

3.3.3. *Attitudes Against Publishing Research Articles as Corresponding Author in Journals in Spanish and in English: Views and Reasons*

The reasons why some of the respondents objected to publishing in English/Spanish were also explored. They were specifically asked whether they had ever considered publishing as corresponding authors in those languages in which they did not have any publications.

What is interesting here is the very significant difference in the results between the two disciplinary communities with regard to the consideration of Spanish as a language of publication, for the reasons commented above. Chemistry scholars do not even consider it a possibility. The comments offered by the informants cannot be more revealing:

English is the language of my specialty.²

In my discipline, [to publish in Spanish] would entail losing in the range of dissemination. For me it is almost an obligation to publish in an English journal.

There is no journal in Spanish that is rated as high in the scientific community as the journals in English. This is an indisputable fact.

However, the attitude of those Economics scholars who have never published in Spanish is slightly different: they do consider publication in Spanish but decide against it. Again, reasons of disciplinary impact are argued:

² The original comments in Spanish have been translated into English by the authors for the sake of understanding.



There is no Spanish journal of my category in the ISI Web of Knowledge

The same arguments against research publication in Spanish are given by Medicine scholars (Martín et al.), who also pointed out the fact that the lack of prestigious Spanish journals in the field of Medicine has led scholars to publishing almost exclusively in English-language journals which, in turn, is causing the almost total disappearance of the national journals in this field of research.

Spanish, however, is not considered a hindrance by historians even in areas such as international dissemination of research findings and participation and visibility of Spanish researchers (Burgess et al.). In that sense, they distance themselves not only from their Chemistry and Economics colleagues, but also from Psychologists, with whom they otherwise share many attitudes.

As regards objection to publishing in English, in Chemistry only 2 scholars out of 231 (0.9%) had never published in that language. One of them said that *s/he* had considered publishing in English but decided against it. The other one said that *s/he* had published in English but not in the last 10 years.

Although not significant in the statistical sense, it is interesting to notice that the only Chemistry academic who could really respond to this question (the only one who had never published in English) indicated the following factors as quite influential in his/her decision not to publish in English:

There is already another person in my group who is responsible for writing the articles.

I think my writing ability in this language is below the standard the journals require.

The reasons for this person seem to lie, therefore, in the research group dynamics at the time of drafting results in English for publication.

In the case of Economics there were eight replies to this question, as only 8 informants had never published in English as corresponding authors, with the following results: 1 (1.4%) had never considered it, 4 (5.4%) had considered it but decided against it, 2 (2.7%) had tried but had been unsuccessful. As for Medicine scholars, the most important reason for them not to publish in English seems to be that there are no prestigious journals in their field for that language.

Therefore, the reasons not to attempt publication in English seem to lie in the discipline itself and in the degree of internationalization of the discipline. It is interesting to notice that whereas the Chemistry informant pointed at the lack of prestigious journals in Spanish, the Economics scholar commented on the lack of an English journal of his/her specialty, which reveals that Economics and Chemistry are disciplines or, at least, have subdisciplines, which are constructed in different languages.

Their attitudes, especially those of Chemistry scholars, are in sharp contrast to those revealed by other academics, and more specifically by Historians (Burgess et al.), who openly manifest their resentment of institutional pressures to publish in English. Another reason offered by Historians not to attempt publication in English was that they considered their writing ability to be below the



standard required by the journal. This argument matches the low percentage of Historians and Psychologists who perceived their English writing competence as high or very high (Burgess et al.; see section 3.2. above). According to Burgess et al., Historians and Psychologists share two further concerns: the costs of translation and of authors' editing services, both of which also enhance their reluctance to publish in English.

Again disciplinary issues are at the heart of the reasons which compel scholars to attempt or not publication in their native language (Spanish) or in English as an international language of communication.

3.3.4 Attitudes towards Publication: Desirability of Publishing in Spanish/English

Within the section which focused on the language choices they made for research publication purposes, one of the questions asked scholars about how desirable they thought it was for Spanish researchers in their field to publish their research in English/Spanish. Here again some interesting differences were found (answers were provided in a five-point scale from "not at all" to "a lot").

In the case of publication in Spanish, the results are shown in Figure 2 below:

The data shown in this figure corroborate and match the results found and commented on above regarding the divergent attitudes towards the publication of research in Spanish in both disciplinary communities: a substantial percentage of Chemistry academics are against it (44.2%) and only a third of them wishes to publish in Spanish (33.6%) whereas more than a half of Economics informants are openly in favour of it (55.5%). The answers provided by the latter are, thus, more in tune with the answers provided in the general survey by all respondents (45.6%). What these and other results show (88.2% of Historians and 71% of Psychologists wish to publish in Spanish according to Burgess et al.) is that there is a wide range of attitudes at least as far as publication in Spanish is concerned.

However, when the data are contrasted for English as the language of publication, the results are interestingly similar across disciplinary communities, as observed in Figure 3 below:

In both cases, an overwhelming percentage of informants consider publishing in English very or quite desirable (94.9% in the case of Chemistry and 90.3% in the case of Economics) vs a very low percentage of those who consider it not at all or slightly desirable (0.5% for Chemistry and 2.8% for Economics). These results are in the same line as those provided in the general survey by all respondents (90.7%). Psychologists (89.9%) show a similar degree of desirability whereas for Historians (80.6%) it is a little bit lower, very much in tune with the reluctance to publish in English they manifest in other parts of the questionnaire (Burgess et al.).

Interestingly then, the most significant differences found across disciplines do not concern their attitudes towards English as the international language for research publication purposes, which are very similar and favourable, but their attitude towards Spanish, as their local language of dissemination, with Spanish



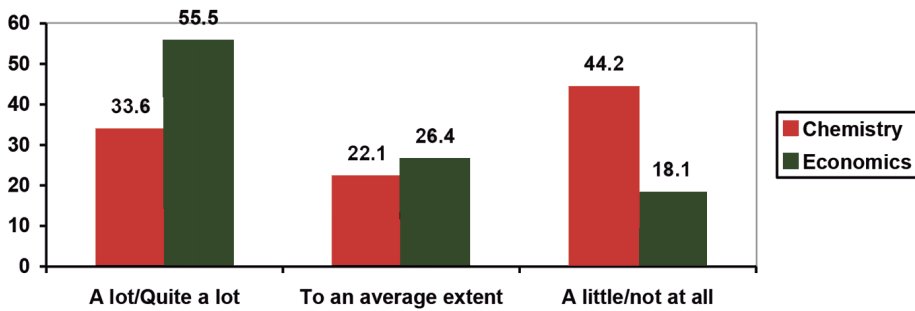


Figure 2. Spanish researchers' degree of desirability to publish their research in Spanish.

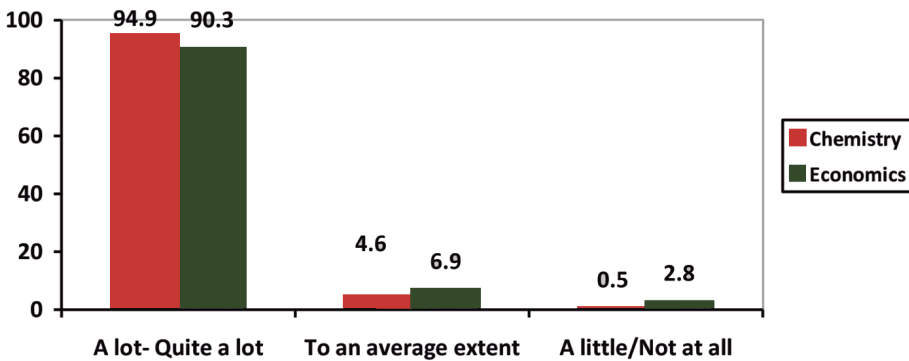


Figure 3. Spanish researchers' degree of desirability to publish their research in English.

Chemistry scholars having ruled out publication in Spanish as an option for them and Economics scholars still considering publication in Spanish as a viable option.

In our view, these different attitudes show that research is still relevant at a local level in the Economics disciplinary community, and the use of Spanish for research dissemination is the logical option for them. In this sense, the degree of internationalisation would be given by the essence of the discipline (more “universal” disciplines such as Chemistry vs more “locally-set” discipline like Economics) and not by the stage they are in the process of becoming “internationalised.” This may lead us to state that Chemistry is a more urban discipline than Economics, which might be considered partially rural (Becher and Trowler 2001).

4. FINAL REMARKS

Our main purpose in this study was to explore the attitudes and motivations that Spanish scholars working in two well-defined areas of knowledge, Chemistry and Economics, had towards research publication in English, and also in their native language, Spanish. Both disciplinary communities were chosen as they are highly productive at an international level, so a large degree of common perceptions and attitudes towards publication in English-medium scientific journals was expected, as has been corroborated by the data yielded by the ENEIDA questionnaire. Both disciplinary communities see publication in English as an opportunity for international dissemination of research results, professional promotion and academic projection. This is especially the case of Chemistry scholars. However, even though they share the view of publishing in English as an opportunity, Spanish members from these two disciplinary communities hold different perceptions as to their own linguistic, rhetorical and discursive competence in English, which make Economics scholars more cautious when attempting publication in English.

Highly relevant are also the differences reported in their attitudes towards publication in Spanish. For Chemistry scholars, publication in Spanish journals is not a viable option. They argue that dissemination is not ensured and that there are no prestigious journals in Spanish in their field.³ This, in our view, may be resulting in a certain degree of domain loss in Spanish (Ferguson) which may be taking place in the discipline of Chemistry. The attitude of Economics scholars towards publication in Spanish is quite different. They still find it a valid vehicle of scientific communication, especially when dealing with topics of local interest.

On the whole, a different degree of “internationalisation” is observed in both disciplines due, among other factors, to the inherent characteristics and research interests of each discipline: more “universal” in the case of Chemistry and, sometimes, more locally-oriented in the case of Economics. The fact that disciplinary and linguistic factors interact when using one or the other language for research publication purposes may explain the, at times, different attitudes of both disciplinary communities towards the use of such languages. Thus, Spanish Economics academics may share attitudes towards English to a larger extent with their international colleagues working in other national contexts (such as French, German, Italian, Portuguese, etc.) rather than with Spanish academics working in other fields, even within closely related domains. As has been discussed, the discipline (or small culture, Holliday) can, to a very large extent, explain diverging attitudes, motivations and perceptions of using English as a language for research publication purposes within the same national context (or big culture, Holliday). What all this shows is that, to varying degrees, the Spanish academics under study have a strong

³ As Sano reports in Ferguson (10), based on the abstracting journal *Chemistry Abstracts*, between the years 1970-2000 the percentage of chemistry journal articles in English rose from 54.2% to 82.1%. This might explain the frequent use of English for publication purposes made by Chemistry scholars and reported in the present study, and also the lack of prestigious Spanish journals in their field.



need to disseminate their scientific results internationally in English and that to be able to do so, they need to be provided with the pedagogical tools, adapted to their disciplinary idiosyncrasy, which will allow them to do so in a competitive and successful way.

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