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Internationalization and Co-authorship in Major Communication Journals in Spain

Abstract

This work has conducted an analysis of Spanish Communication journals in terms of their level of internationalization and the collaborative models used by their authors, by assessing 1,182 articles published between 2007 and 2011 in the seven top-rated Communication journals according to a set of six quality indicators. The ultimate goal has been to perform a data processing in order to detect the degree of inclination of international authors to publish their works in Spanish journals in the years covered by this study. Secondly, the study draws a profile of co-authorship patterns focused on geographical and institutional alliances. The results show there is no clear and convincing signs of evolution towards a desired level of internationality. Concerning co-authorship, although the results indicate a willingness on the part of authors to chart a path of wider geographical and institutional collaboration, unique authorship continues to be the preferred form of publication. Finally, the work shows that investigative alliances are confined to Spain and when they go international collaborations are almost exclusively with Latin American authors.

Keywords

Communication, Spain, research, journals, authorship, internationalization, scientific Communication, universities.

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1. Introduction: State of the art

Until about 30 years ago, the publication of articles in academic journals represented only part of communication research production in Spain. Although re-

searchers in the experimental sciences and engineering were used to disseminating their discoveries in reputable international publications, social scientists traditionally published in books and in more generalist journals (Hicks, 2004). This situation has been changing in recent years to the point where there has been an evident shift towards paradigms similar to those of the experimental sciences. This was confirmed by King (1987) who pointed to the use of bibliometrics and other quantitative methods by public administrations to justify public spending on the sciences.

This paradigm shift should not be viewed as a negative development: first, publication depending on successful peer review is a guarantee of quality (Delgado, Ruiz-Pérez & Jiménez-Contreras, 2006); and second, authors' reputations benefit from the recognition received from expert reviewers. However, this new paradigm, which seems to be firmly established, does have some weak points:

- There is a growing tendency for authors to select journals according to perceived benefits for their personal curricula vitae (Giménez & Alcain, 2006).
- Authors focus their publication efforts on a handful of journals associated with the most important databases in terms of international recognition and dissemination – essentially the Social Sciences Citation Index (SSCI) and SciVerse Scopus, both primarily in English and, although this has had a positive effect on the international visibility of Spanish science (Jiménez, Moya & Delgado, 2003), it also leads to a high proportion of publications by relatively few institutions, in accordance with the Pareto principle (1935).
- Because they are few in number, databases are inevitably generalist, making it difficult to find specific articles on a particular theme (Larivière, 2006).
- The language factor tends to skew real production in favour of English-speaking countries (Andersen, 2000).

In response to this situation, non-English-speaking countries like Spain have developed their own teaching and research evaluation systems, like the benchmark used for the quality of Spanish publications by the National Agency for Quality Assessment and Accreditation (ANECA). Spanish journals have also invested efforts to improve their visibility and quality and so enhance their international presence. There have been a number of undeniable successes in communication, with inclusion in the SSCI in 2007 of «Comunicar» and of «Estudios del Mensaje Periodístico» and «Comunicación y Sociedad» in 2009.

This changing context underlines the need to study the current situation with regard to social science publications. A number of authors and research groups have already begun to invest research efforts in communication publications, with research to date focusing on quantitative evaluation of aspects such as gender, the ratio of researchers per article, the methodologies used (Castillo & Carretón, 2010), the language used and authorship and citations (Fernández-Quijada, 2010; 2011). Other studies have focused on the quality criteria used by the different databases, the situation of Spanish communication journals (Giménez & Alcain, 2006), the consequences of the «ANECA¹ effect» (Soriano, 2008) in Spain (Masip, 2011) and the topics and methodological shortcomings of articles published between 1998 and 2007 (Martínez-Nicolás & Saperas, 2011).

From this body of research the following dual tendency has been identified: 1) Spanish journals are attempting to stimulate greater interest from foreign authors by internationalizing their publications (Giménez & Alcaín, 2006); 2) growing numbers of Spanish authors are publishing their work in higher impact international journals (Masip, 2011). In fact, positive developments are particularly evident from 2008, when Spanish communication journals were first included in international databases.

This article analyses the degree of internationalization and patterns of cooperation between authors of Spanish communication journals. The aim was to characterize communication journals published in Spain by conducting a detailed study of their content so as to evaluate them for evidence of greater internationalization (specifying countries) and to identify authorship profiles and cooperation patterns.

One objective was to determine whether individual work predominated over group research and to analyse the nature and origins of co-authorship. The goal was to map international and national co-authorship and so identify trends in links between the main institutions –universities in particular– publishing articles on communication in Spain.

The study focused on the main Spanish publications on communication; to ensure an exhaustive and representative analysis, the period chosen for review was the last five years for which complete data is held (2007 to 2011). This study does not propose or verify any particular analysis system or bibliometric criteria, already firmly established in the library and information science disciplines. The aim was to simply provide a general overview of the current situation regarding the internationalization and co-authorship profiles of the analysed journals. This research therefore had three specific objectives:

- To measure the degree of internationalization of Spanish communication journals and evolution over the period 2007 to 2011.
- To describe authorship cooperation patterns between universities and countries.
- To draw up a broad authorship profile (gender, nationality and university or affiliated institution) for Spanish communication journals.

2. Material and methods

The basis for this study were 50 journals taken from the communication section of the DICE² database –used by ANECA as a quality benchmark for Spanish publications– together with the journal «El Profesional de la Información».³ The journals was classified using a set of criteria labelled 0 to 6, as follows: criterion 0 referred to publications active during the entire study period (2007 to 2011); criterion 1 and criterion 2 referred to inclusion in the SSCI and Scopus databases, respectively, along with quartile information; criterion 3 referred to inclusion in the Latindex database; criterion 4 referred to inclusion in the ISOC-CSIC⁴; criterion 5 referred to journals –called ‘source journals’– rated as particularly important in the communication field according to IN-RECS⁵; and finally, criterion 6

referred to publications with an external review system. The journals were organized in a table according to these criteria (figure 1).

Journals Selected (met 5 or more criteria)		Total Criteria	C0	C1		C2		C3	C4	C5		C6
			Years	ISI (SSCI)	Quartile	SCOPUS	Quartile	Latindex	ISOC	Rev.Source IN-RECS	External Ev.	
1	Comunicar. Revista Científica Iberoamericana de Comunicación y Educación	7	1994-	x	Q3	x	Q3	33	x	x	x	x
2	Comunicación y Sociedad	7	1988-	x	Q4	x	Q3	33	x	x	x	x
3	Estudios sobre el Mensaje Periodístico	7	1994-	x	Q4	x	Q4	33	x	x	x	x
4	EPI	7	1998-	x	Q3	x	Q3	33	x	x	x	x
5	Revista Latina de Comunicación Social	6	1998-			x	Q4	36	x	x	x	x
6	Anàlisi: Quaderns de comunicació i cultura	5	1980-					31	x	x	x	x
7	Zer. Revista de Estudios de Comunicación	5	1996-					31	x	x	x	x
Journals Not Selected (number of criteria less than 5)		Total Criteria	C0	C1		C2		C3	C4	C5		C6
			Years	ISI (SSCI)	Quartile	SCOPUS	Quartile	Latindex	ISOC	Rev.Source IN-RECS	External Ev.	
1	Comunicación y hombre. Revista interdisciplinar de Ciencias de la Comunicación y Humanidades	4	2005-					31	x			x
2	Mediatika. Cuadernos de Medios de Comunicación	4	1997-					30	x			x
3	Quaderns de Filologia. Estudis de Comunicació	4	2002-					29	x			x
4	Mediaciones Sociales	4	2007-					35	x			x
5	Comunicación (Ed. electrónica)	4	2007-					31	x			x
6	Historia y Comunicación Social	4	1996-					32	x			x
7	Historia y Comunicación Social (Ed. electrónica)	4	1996-					34	x			x
8	Comunicación. Revista de Recerca i d'Anàlisi. De 1991 a 2010 se publica como Treballs de comunicació.	4	2010-					32	x			x
9	Periodística	4	1989-					27	x			x
10	CIC. Cuadernos de Información y Comunicación	4	1995-					33	x			x
11	Telos	4	1985-					28		x		x
12	Doxa Comunicación	4	2003-					33	x			x
13	Pensar la publicidad. Revista internacional de investigaciones publicitarias	4	2007-					33	x			x
14	Pensar la publicidad. Revista internacional de investigaciones publicitarias (Ed. electrónica)	4	2007-					35	x			x
15	CIC. Cuadernos de Información y Comunicación (Ed. electrónica)	4	1995-					35	x			x
16	Vivat Academia	3	1998-					34				x
17	Icono 14	3	2003-					34				x
18	Revista de la SEECI	3	1998-					33				x
19	Tripodos	3	1996-						x			x
20	Questiones publicitarias	3	2007-					32				x
21	Área abierta	3	2001-					33				x
22	Ámbitos. Revista Internacional de Comunicación	3	1998-					29	x			
23	IIC. Información y comunicación	3	2003-					27	x			
24	LOGO. Revista de Retórica y Teoría de la Comunicación	1	2001-									
Journals Not Selected (not active during the entire study period)		Total Criteria	C0	C1		C2		C3	C4	C5		C6
			Years	ISI (SSCI)	Quartile	SCOPUS	Quartile	Latindex	ISOC	Rev.Source IN-RECS	External Ev.	
1	Comunicación. Revista Internacional de Comunicación Audiovisual, Publicidad y Estudios Culturales	3	2002-2007					27	x			x
2	Derecom	3	2010-					33	x			x
3	adResearch ESIC	3	2010-					32	x			x
4	Questiones Publicitarias. Revista Internacional de Comunicación y Publicidad	3	1993-2006					30	x			x
5	Textual & Visual Media	2	2008-					32				x
6	Miguel Hernández communication journal	2	2010-					32				x
7	Revista Mediterránea de Comunicación	2	2010-					36				x
8	Fonseca. Journal of Communication	2	2010-					34				x
9	Revista de Comunicación y Salud	2	2011-					33				x
10	Sesión no numerada	2	2011-					32				x
11	adComunica	2	2011-					30	x			x
12	Revista Internacional de Relaciones Públicas	2	2011-					34				x
13	EU-topías	2	2011-					26	x			
14	Conexiones. Revista Iberoamericana de Comunicación	1	2009-					29				
15	Revista Española de Comunicación en Salud	1	2010-					29				
16	Fotocinema	1	2010-					32				x
17	Comunicación y Estudios Universitarios	1	1990-2001					21				
18	Revista de Ciencias de la Información	0	1984-1995									
19	Revista Universitaria de Publicidad y Relaciones Públicas	0	1990-2000									

Figure 1. Spanish academic communication publications.

Of the 51 journals, 19 were excluded as failing to meet criterion 0. The remaining publications, ranked according to the number of criteria met, were grouped into two blocks: 24 publications that satisfied fewer than five criteria, and seven journals meeting five, six or seven criteria that were taken as the study sample, namely, «Comunicar», «Anàlisi», «Comunicación y Sociedad» (Com+Soc), «Estudios sobre el Mensaje Periodístico» (EMP), «El Profesional de la Información» (EPI), «Zer» and «Revista Latina de Comunicación Social» (RLCS).

Only research articles from the seven journals were included in the study; excluded were book reviews, personal reflections, author comments and texts not

considered to be research articles by the journals that published them. This left us with a final sample consisting of 1,182 articles.

We next defined the study variables. Given that the unit of analysis was the academic article, a set of variables was established for each unit that depended on the number of authors. Thus, for the corpus of $M=1,182$ articles, and for any given article with j authors, defined were $M=3+3j$ variables. The first three variables were t (year of publication), r (journal where article was published) and n (number of authors); and the second three were, for each author i , iG (gender), iO (geographical origin) and iP (institution), with i ranging from 1 to j . Therefore, a chain of values as follows corresponded to each article: $M = t, r, n, (iG, iO, iP)_{i=1}^{j=1}$.

For the corpus of $M=1,182$ articles, obtained was a total of 9,762 values, processed to extract the maximum amount of information. Counting was done independently and always based on the initial data; in other words, data that was already processed were never used to ensure that reliability could be confirmed by cross-checking against previous counts. Finally, the study data were filtered, aggregated and represented using statistical methods implemented using Microsoft's statistical package and the Ucinet6⁶ program (following Bogartti, Everett & Freeman, 2002).

3. Analysis and results

3.1. Gender

Regarding the variable G (gender), of the total of 2,072 authors, 1,209 were men (58.3%) and 863 were women (41.7%). No clear trend was evident over the study period and male authors predominated slightly each year and for all seven publications (figure 2).

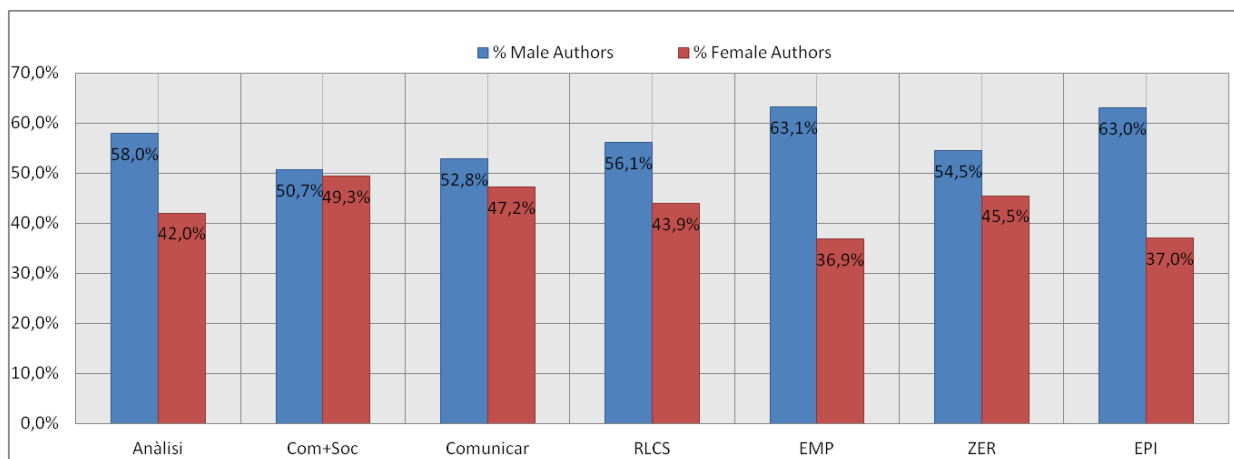


Figure 2. Authorship by gender for the seven journals 2007 to 2011.

3.2. Number of authors

The variable *n*, referring to the number of authors, had a value of 2,072, obtained by adding up the total number of authors for each article for the 1,182 texts in the sample.

Dividing the 2,072 authors by the 1,182 articles yielded a mean value of 1.753 authors per research article over the study period, ranging between 1.657 in 2007 and 1.923 in 2011 (figure 3). The increase in authors per article occurred in two distinct phases: 2007 to 2009, when the upward trend was gradual; and 2010 and 2011, when the upward trend was more pronounced. The highest author-article ratio, corresponding to «EPI», was 2.225, a value which remained steady throughout the study period. The second highest ratio, 1.671, corresponded to «Comunicar», which has a policy of restricting the number of authors per article to three; «Comunicar», nonetheless, saw a steady increase in this value from 2007, with the threshold of two authors per article crossed in 2011. Similar upward trends were evident for «Com+Soc» and «RLCS». For the remaining publications, average values were lower and trends were mixed. The lowest author-article ratio for the study period (1.423) was recorded for «Anàlisi».

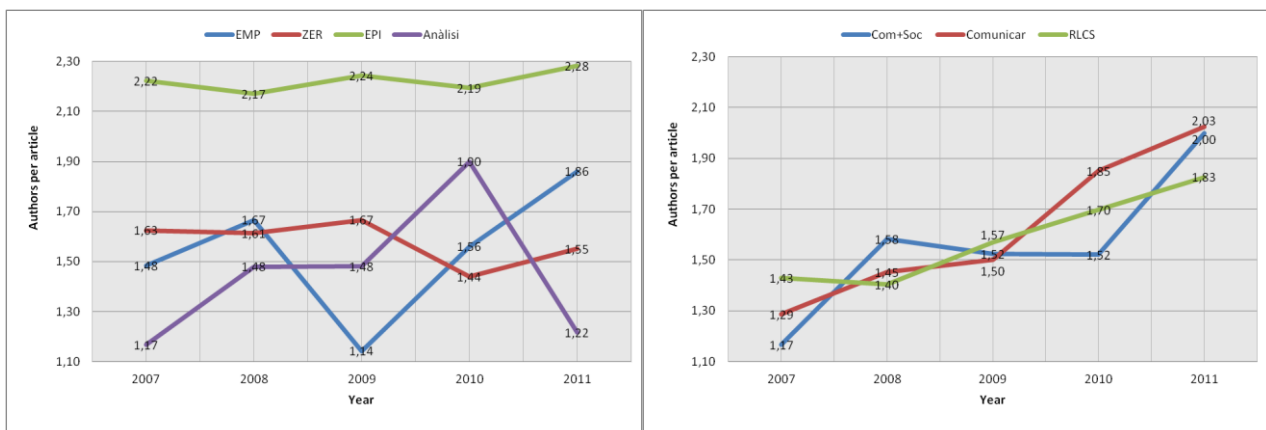


Figure 3. Author-article ratios for the seven journals 2007 to 2011.

Authorship in numerical terms was broken down in terms of 663 single –and 519 dual- and triple- and multiple-authored (defined as more than three) articles (figure 4). Single authorship predominated in six of the seven journals; «EPI» was the only journal in which co-authored articles predominated (50.6%, versus 35.4% for single authored articles).

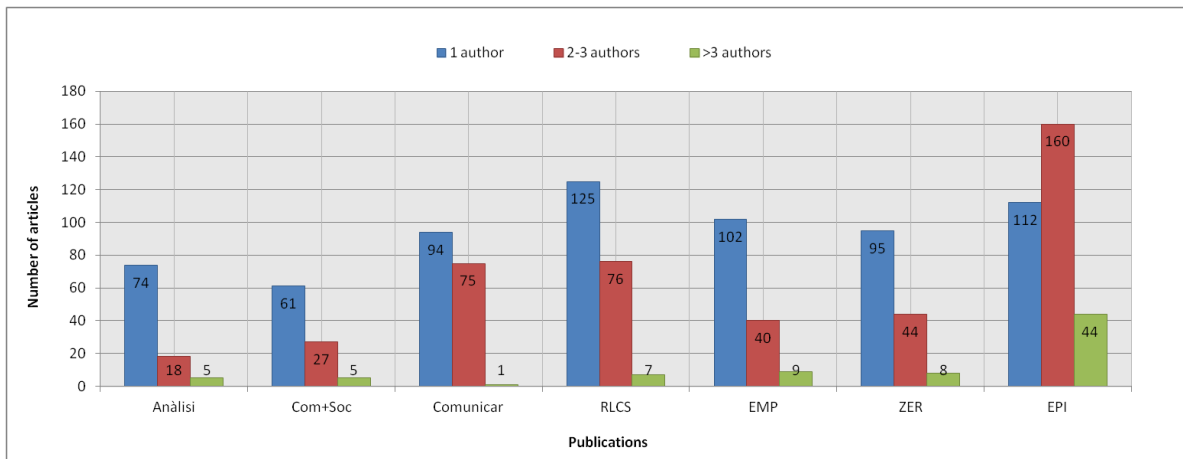


Figure 4. Average authorship per article for the seven journals 2007 to 2011.

Dual- and triple-authored articles predominated over multiple-authored articles for all the journals. It should be noted that some of these journals have a policy of restricting the number of authors per article, e.g., as mentioned earlier, *Comunicar*; where an exception was made on just a single occasion (figure 4).

3.3. Geographical origins

Single-authored articles numbered 663; 556 of these authors were from Spain (83.8%) and the remaining 107 authors were from elsewhere, mainly Latin America and Europe, represented by 63 (9.5%) and 25 (3.8%) single authors, respectively. Argentina and Mexico, with 15 authors each, predominated among the Latin American countries, followed by Chile (9), Cuba (7), Colombia (4), Brazil (4) and miscellaneous (9). As for the European countries, the range of nationalities was broader, as follows: United Kingdom (5), Portugal (4), Belgium (4), Italy (2), the Netherlands (2) and finally Sweden, Switzerland, the Czech Republic, Denmark, France, Croatia and Germany (1 each). The remaining authors were from the USA/Canada (10), Asia (4), Africa (4) and Oceania (1).

As for dual, triple and multiple authorship, distributions were fairly similar to those for single authors. Of the 519 articles attributed to more than one author, 432 were Spanish (83.2%), 33 were Latin American (6.6%) and 23 were Spanish-Latin American (4.4%). Articles written, therefore, by two authors or more who were Spanish, Latin American or both accounted for 92.3% of the total (figure 5).

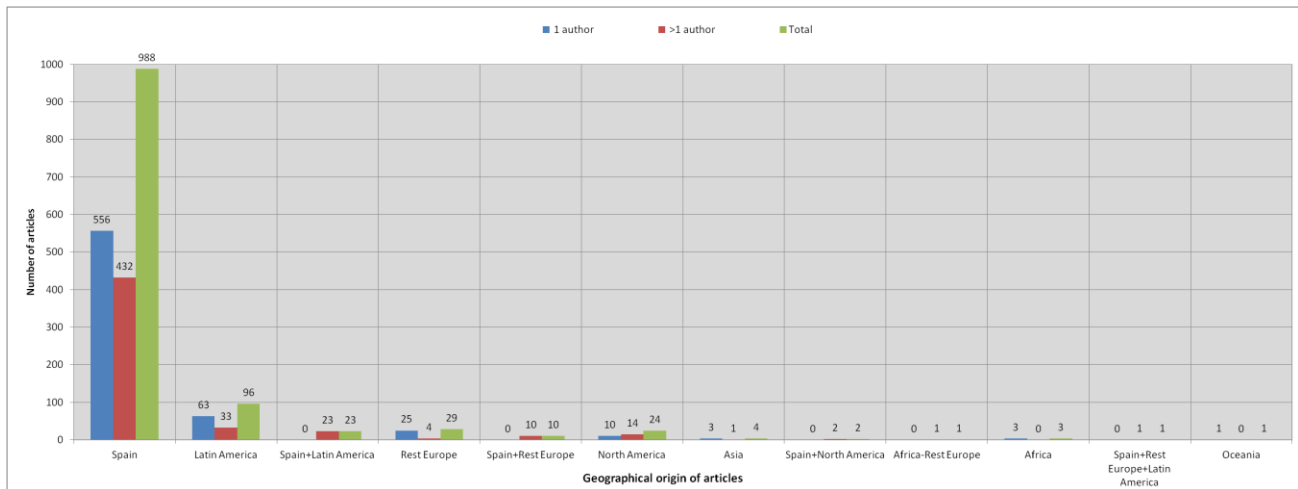


Figure 5. Geographical origins of 1,182 articles published in the seven journals 2007 to 2011.

Of the 33 co-authored articles written exclusively by Latin American authors, most came from Chile (11) and Mexico (10), followed by Argentina (6), Brazil (4) and Colombia (2). Of the 23 Spanish-Latin American co-authored articles, the most frequent partnerships were between Spanish and Mexican (6) and Spanish and Argentinian (5) authors.

Overall, the following conclusions can be drawn from the above analysis of the 1,182 articles in the sample: (1) Spain accounted for 83.6% (988); (2) Latin America accounted for 8.1% (96); (3) English-speaking countries accounted for 2.7% (31); (4) France, Germany and Italy combined, despite being countries at the heart of the European Union with a lengthy communication research tradition, accounted for 0.4% (5); and (5) Spanish authors (alone or with other authors) participated in 86.7% (1,024).

3.4. Originating institutions

Of the 663 single-authored articles, 580 (87.5%) came from universities⁷ and the remaining 83 were submitted by private companies, research or information centres, public administrations and secondary education centres. As for the 519 co-authored articles, 384 (74%) were produced by inter-university teams, 130 (25%) were submitted by university-non-university authors and 5 (1%) were submitted by non-university authors.

A total of 213 universities located in 39 different countries were cited as author affiliations. Spain was the main source, with 74 universities, followed by 89 Latin American universities – mainly located in Mexico (25), Chile (17), Argentina (15) and Colombia (12). A further 30 universities were located in the rest of Europe, 13 in North America, 4 in Asia, 2 in Africa and 1 in Oceania.

The universities contributing most articles were the Complutense University of Madrid (UCM) with 52 articles, followed closely by the Autonomous University of Barcelona (UAB), with 51 articles (figure 6).

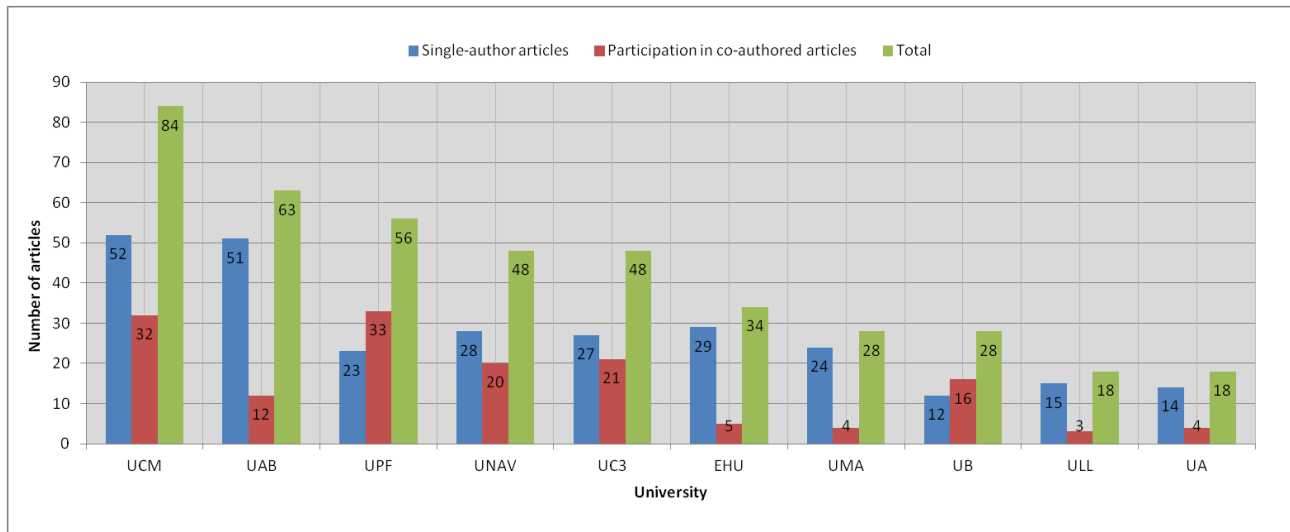


Figure 6. The ten universities contributing most articles to the seven journals 2007 to 2011.

Pompeu Fabra University (UPF) led the group in co-authorship (33 articles), just ahead of the UCM (32 articles). The UAB co-authored a mere 12 articles, accounting for just 19% of its total production of 63 articles (figure 6).

There was a marked tendency for production to be concentrated in a small number of Spanish universities – essentially the ten featured in figure 6. In fact, 44.1% of the 964 publications originating in universities were produced by these ten universities (approximately 96 per university), with the remaining 425 articles distributed among the other 203 universities (a mere 2 per university).

3.5. Cooperation between institutions

Figure 7 shows the intensity of cooperation between universities in the five years covered by this research by mapping authorship links between universities (arrows) and indicating the number of articles co-authored by these universities. For the sake of clarity, figure 7 shows only co-authorships for two or more authors..

The most numerous co-authorships (6) were those resulting from alliances between the UPF and the University of Barcelona (UB), the UPF and Ramon Llull University (URL) and the UCM and King Juan Carlos University (URJC). Other important alliances (5) were those between the UPF and Rovira i Virgili University (URV) and between the UCM and Carlos III University in Madrid (UC3).

Two key productive clusters are evident, one based in Catalonia and the other centred on Madrid. Each operates very differently: Catalan universities cooperate extensively with each other (22 articles) but are poorly connected to the rest of Spain (4 articles), whereas universities in the Madrid region have authored 13 original articles with universities in other regions of Spain as well as 11 papers with local universities.⁹ Madrid's universities are, consequently, better connected with the rest of Spain, particularly with universities on the periphery.

One unexpected finding was made. The Catalan cluster (UPF-UB-UAB-URV) did not co-author any papers with the Madrid cluster (UC3-UCM-URJC). Or to put it more bluntly, there is little cooperation between the main geographical research clusters in communication. Articles co-written by Madrid-based and Catalan-based authors were rare among the 1,182 articles analysed.

The University of Navarra (UNAV) –as indicated by its central position in figure 7– seemed to perform a linking function between Catalonia and Madrid, with 4 and 2 articles co-authored by universities in these clusters, respectively. UNAV also maintained links with the rest of Spain, with 6 co-authorships, 3 with the University of Granada (UGR) and 3 with the San Jorge University in Zaragoza (USJ).

From the above analysis, it can be deduced that the universities most given to building bridges with other institutions during the study period were UPF, UC3, UCM and UNAV.

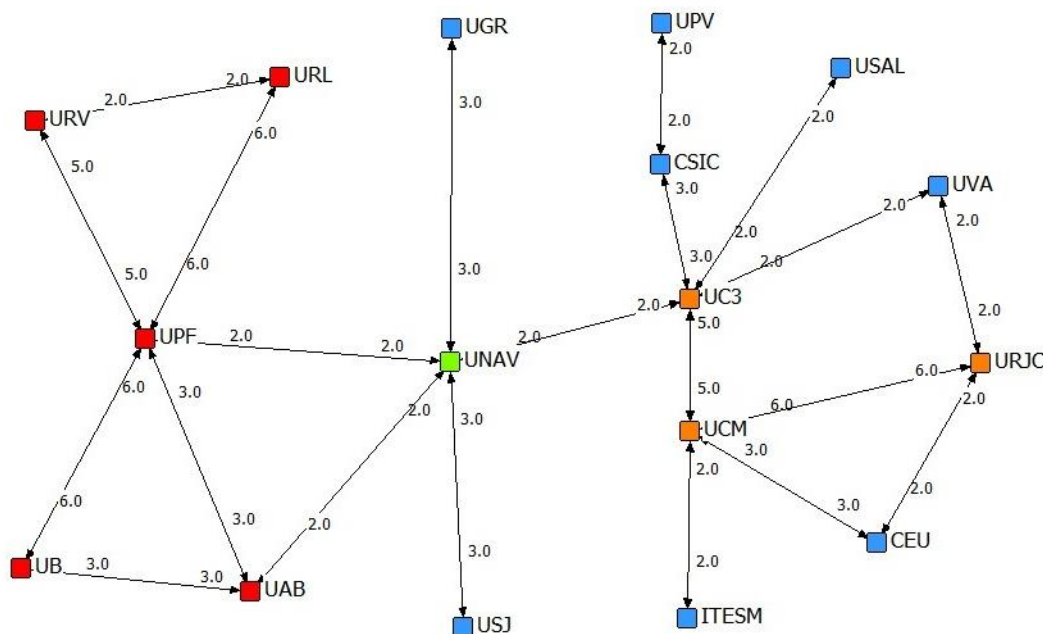


Figure 7. Nodal map of the main university co-authorship links for the seven journals 2007 to 2011.

4. Discussion and conclusions

Spanish communication journals are numerous, yet few meet the most demanding Spanish and international quality criteria. This raises the question of whether the number of journals is excessive, especially given that expert opinion reflects little or no recognition for most of these publications (Giménez and Alcain, 2006). Furthermore, the large number of quality indices and consequent classifications leads to confusion when attempting to evaluate the journals. Initiatives to unify criteria would therefore be valuable, not only in clarifying the map of Spanish communication journals, but also in improving the dissemination of, and possibilities for locating, research by other authors in the field.

4.1. Co-authorship

An analysis of the 2,072 authors for the period 2007 to 2011 revealed an upward trend in the number of authors co-writing articles, with an average of 1.7 authors per article over the period, but rising to 1.9 in 2011. «EPI» was the sole exception to this trend, with a fairly constant 2.2 authors per article. This trend towards more authors signing articles intensified from 2010, yet the average remains below that for communication journals better positioned in the SSCI database, for instance, the «Journal of Communication», with 2.41 authors per article (Castillo, Rubio & Almansa, 2012). The upward trend for Spanish journals –very marked for «Comunicar», «Com+Soc» and «RLCS»– seems to indicate a firm commitment to achieving international standards of excellence.

The data admit another important interpretation: there is evidence of a slow, steady and perhaps irreversible shift towards team research over individual research. This new scenario, influenced as it is by international standards and the demands of peer review, requires authors to apply more and better working methodologies and to obtain more human and financial resources. Our research highlights how individuals find it difficult to comply with such strict requirements; therefore, a key approach to achieving the desired results and quality is for such laborious tasks to be performed by –frequently interdisciplinary– teams. The new data brought to light by our research indicate, nonetheless, that some serious methodological shortcomings of communication journals are now being overcome. Although Martínez-Nicolás and Saperas (2011), in their excellent study covering the period 1998 to 2007, reported that many published papers lacked a methodology of any kind, in the new context of stricter controls one can expect such articles to become increasingly rare.

4.2. Internationalization

The Spanish communication journals analysed had a poor international presence, with only 16% of their articles submitted from countries other than Spain, and with more than half of these international papers originating in Latin America (8.7%). Were it not for the contributions from Latin America, in fact, it would hardly be possible to refer to these journals as internationalized.

It is highly significant that English-speaking countries did not even account for 3% of the total, and that even fewer articles (0.4%) were written by researchers based in European countries with a long communication tradition (France, Germany and Italy). In terms of language, 92.3% of the articles came from Spanish-speaking countries and just 7.7% originated in non-Spanish-speaking countries. These data reveal a worrying lack of interest in publishing in Spanish journals by non-Spanish-speaking researchers. Correcting this trend is a key challenge to be faced in the future if Spanish journals are to both grow and acquire an international reputation.

4.3. Institutional and territorial links

Contributions made by universities represented 92.6% of the articles included in this study. This is entirely consistent with international standards; Castillo and coworkers (2012) reported that articles by authors affiliated with universities represented the overwhelming majority of publications in the highest-impact communication journals. However, in terms of cooperation patterns, the vast majority (81.2%) of co-authored articles were written by authors from the same university, leaving only 18.8% written by authors from different universities. These results would point to the still considerable gap between Spanish and top-ranked SSCI communication journals; for the top five international journals, for example, the average number of articles co-written by authors from different universities was 58.7%.

Observations regarding links between universities reveal two main cooperation clusters. The Catalan cluster has strong links with universities in the same region but hardly any links with other universities in Spain, whereas the Madrid cluster cooperates both locally but also with other universities in Spain. There is so little connectedness between these two main clusters that it could be said that they simply ignore each other's existence. This poses obvious risks, such as the possibility of a worrying duplication of efforts, a situation further compounded by the current context of scarce public resources.

4.4. Authorship profile

The information gathered during the research enabled authorship for articles to the Spanish communication journals analysed to be profiled as follows: (1) the author is male; (2) he is based at a Spanish university; (3) he generally publishes as a single author; (4) when he co-authors, he does so with authors from the same university; (5) if he co-authors with authors from another university, he does so with authors from a Spanish university; (6) if he co-authors with authors from another country, this country is located in Latin America.

Internationalizing this profile is a complex task that is still in its initial stages. Nonetheless, the growing international presence of a small group of journals since 2008 may be cause for some optimism.

It is also encouraging to see researchers committed to working in teams. Our research has identified a clear positive trend towards authorship numbers exceeding the critical value of two per article. However, further efforts need to be invested in cooperation beyond the local level and in strengthening the currently under-exploited Catalonia-Madrid axis. Although much remains to be done to catch up with the top-ranked international journals, the goal is clear, the lines have already been drawn and the initial steps have been taken.

Notes

¹ According to Jaume Soriano, the ‘ANECA effect’ refers to how academics have modified how they present their research results and how young researchers map their careers according to study goals that fit with criteria defined by agencies such as ANECA.

² Difusión y Calidad Editorial de las Revistas Españolas de Humanidades y Ciencias Sociales y Jurídicas (Dissemination and Quality of Spanish Humanities, Social Sciences and Legal Journals).

³ Our inclusion of «El Profesional de la Información» (EPI) is based on the fact that, although historically it focused on documentation and library science, it now defines itself as an international ‘documentation, library science and communication journal’ and has shown a growing interest in also publishing communication research in recent years.

⁴ Database of social and human science articles published in Spanish journals maintained by CSIC (Spain’s national research council).

⁵ Bibliometric index of the EC3 research group based at the UGR. It provides statistical data based on citation counts aimed at identifying the importance, influence and impact of Spanish social science journals.

⁶ Ucinet6 for Windows version 6.452, 1992-2012: Analytic Technologies.

⁷ Universities and research institutes referred to in the article are listed as follows:

Universidad Complutense de Madrid (Madrid)	UCM	Universidad Autónoma de Barcelona (Catalonia)	UAB
Universidad Pompeu Fabra (Catalonia)	UPF	Universidad del País Vasco (Basque Country)	EHU
Universidad de Málaga (Andalusia)	UMA	Universidad de Barcelona (Catalonia)	UB
Universidad de La Laguna (Canary Islands)	ULL	Universidad de Alicante (Valencia)	UA
Universidad Ramon Llull (Catalonia)	URL	Universidad Rovira i Virgili (Catalonia)	URV
Universidad de Granada (Andalusia)	UGR	Universidad San Jorge de Zaragoza (Aragon)	USJ
Universidad de Navarra (Navarra)	UNAV	Universidad Carlos III (Madrid)	UC3
Consejo Superior de Investigaciones Científicas (Madrid)	CSIC	Universidad de Salamanca (Castile-León)	USAL
Universidad Politécnica de Valencia (Valencia)	UPV	Universidad de Valladolid (Castile-León)	UVA
Fundación Universitaria San Pablo CEU (Madrid, Catalonia, Valencia)*	CEU	Instituto Tecnológico de Monterrey (México)	ITESM
Universidad Rey Juan Carlos (Madrid)	URJC		

* Although this university has three campuses, it was counted as a single university. Articles contributed to the seven journals originated in the Madrid (2) and Valencia (1).

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