Revista Latina de Comunicación Social # 067 – pages 287 to 316
Research | DOI: 10.4185/RLCS-067-957-287-316 | ISSN 1138-5820 | Year 2012

The scientific productivity in Communication across the journal *Zer*

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Abstract: This article presents the results of a study on the individual and institutional research productivity in *Zer Journal of Communication Studies*, during its first ten years of history (1996-2005). This journal has been chosen for four reasons: it is the highest ranked publication; it is the journal in which most researchers want to publish their latest work; it is one of the top three journals in terms of impact in the field of communication; and it is one of the twelve Spanish journals of communication indexed in international databases. This is the first study on research productivity carried out in Spain to offer a ranking of authors. In order to identify and rank the most productive authors and universities, quantitative content analysis was conducted on the 220 research articles published by *Zer* from 1996 to 2005. The findings reveal that research productivity is low; that three universities produce more than half of the articles; that collaboration between universities is low; and that international collaboration is moderate.

Keywords: Productivity; communication; academic journal; content analysis; universities; bibliometrics.

Translation by **Cruz-Alberto Martínez-Arcos**, M.A. (University of London)

1. Introduction

The study of the research works conducted and published in a certain field is not widespread in the field of communication in Spain. This type of research aims to measure the productivity of authors and institutions and to analyse the evolution of a given field over a certain period of time. While this type of studies has become common in other countries, to detect thematic and methodological trends, they are very scarce in the

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Spanish journals of communication (Martínez and Saperas, 2011; Castillo and Carretón, 2010; López-Ornelas, 2010; Colle, 2009).

For this reason, this case study aims to measure the research productivity of a specific journal during a specific period of time. After reviewing the state of art in the field of communication (see section 2), only one journal was chosen, *Zer Journal of Communication Studies*), to conduct a longitudinal and systematic analysis over a ten-year period of time (1996-2005). This first exploratory study aims to complement the research works carried out so far in this subject area.

In the Spanish university context, the academic evaluation of researchers and institutions is increasingly important due to the need to gain the endorsement of the Spanish National Agency for Quality Assessment and Accreditation (ANECA) (see, for example, the annual report published by *El* Mundo newspaper on the quality of universities). Therefore, this longitudinal research productivity study in the field of communication aims to provide new data that will show the state of research in the field before the so called ANECA effect (Soriano, 2008: 1): "A type of research production that meets the requirements set by these agencies more effectively than the inertia of the research tradition inherited so far".

A research over a long period of time allows establishing the most important authors and institutions in the field of communication research. The method used to undertake this study is the one developed by West (2007).

As mentioned, this work is pioneering in the Spanish context because it evaluates the individual and institutional research contributions to the field of communication in Spain over a continuous period of time, and also complements previous research works that have emerged recently (Martínez and Saperas, 2011; Castillo and Carretón, 2010; López-Ornelas, 2010; Colle, 2009). To this day, there are no continual indicators of productivity available in this field. The content analysis of the articles published by *Zer* will help us to: 1) establish the features of the researchers that have published recently (Zou, 2005); 2) identify the most prolific universities; and 3) to offer an exploratory view of what happened in the field of communication before the 'ANECA effect'.

Research productivity studies in communication are important for three reasons (Soley & Reid, 1983): 1) they are relevant for students who want to choose the highest-quality curricula for their future career, 2) they are important for young professors and new doctors who want to choose the universities that contribute the best to their professional development, 3) they help promoting a healthy rivalry between universities interested in the development of a discipline, and 4) they provide

objective indicators about the contribution of authors, institutions, and disciplines (Soley & Reid, 1988).

Other theorists (Pasadeos, Phelps & Bong-Hyun, 1998) claim that productivity studies help us to describe the intellectual history of a given discipline. Zou (2005) points out that they are valuable because they show the main lines of research to international researchers. Kamhawi & Weaver (2003) indicate that these studies allow us to discern wider models and trends in mass communication, and to assess predictions about the future of mass communication, based on the study of certain periods of time.

Burroughs *et al.* (1989) suggest that productivity studies serve to measure the quality of doctoral programmes and university departments, as well as to identify the most-productive authors in terms of number of publications, which is crucial in the evaluation of current or prospective members of university departments. Zou (2005) highlights that these studies are useful for the assessment of the research productivity of individuals and institutions based on their publications, while Schweitzer (1988) adds that the establishing of rankings is very helpful to increase competitiveness between researchers and universities.

Hickson (1991) and Schweitzer (1988) have pointed out that accreditation agencies need to undertake these studies to facilitate the professional development of scholars. Finally, Hickson, Bondon and Turner (2004) indicate that this type of studies do not only attract students and enhance the reputation of doctoral studies, but can also help universities to obtain funds.

2. State of the art review

Within the realm of documentation, there are different studies and theories related to research productivity, and also a whole series of bibliometric laws (Lotka's author productivity law, Pareto's principle, Bradford's law of dispersion of scientific literature, etc.). This article does not deal in details within these conceptual frameworks, because Castillo and Carretón (2010) have recently published a research work that includes a summary on the relation between bibliometrics and the field of communication. However, this article does try to describe the types of studies published so far in Anglo-Saxon and Spanish journals.

2.1. Types of studies on communication research articles

Studies on the participation of authors and universities in communication research articles can be classified into two large groups **[1]** (bibliometric indicators): those focused on measuring productivity (production index) and those focused on citation

(visibility and impact indicators). Productivity studies are indirect since they seek to identify the

authors and/or institutions that have made the greatest impact on academic journals through published articles.

In the heterogeneous field of communication these studies have been made from different areas **[2]**: advertising (West, 2007; Zou, 2005; Barry, 1990; Soley & Reid, 1983, 1988), public relations (Pasadeos & Renfro, 1992), journalism (Kramer, 2007; Lauf, 2005; Wilhoit, 1984), and mass communication (Hickson *et al.*, 2009; Hickson, Bodon & Turner, 2004; Funkhouser, 1996; Schweitzer, 1988; Burroughs *et al.*, 1985). Productivity studies have also been conducted from areas related to business and marketing (Chan, Chan & Cheng, 2003; Anderson, 2002; BakØr, Vitell & Rose, 2000; Knight, Hult & Bashaw, 2000; Inkpen & Beamish, 1994), and telecommunications (Atkin & Jefres, 1998).

Citation studies (visibility and impact indicators) seek to identify directly what articles and authors have had more impact based on the citations they receive from peers, i.e. the more times an author is cited, the more impact his or her article has. These studies are a "procedure to examine the exchange of knowledge" (Garfield, 1979, in Cote, Leong & Cote, 1991). Knight, Hule & Bashaw (2000) say that these studies serve to "measure quality through influence". Citation studies have been published in journals from different areas: advertising (Zou, 2005; Pasadeos, Phelps & Bong-Hyun, 1998; Pasadeos, 1985; Russell & Martin, 1976), public relations (Pasadeos & Renfro, 1992), journalism (Riffe & Freitag, 1998), mass communication (Stephen & Geel, 2007; Hickson, Bondon & Turner, 2004; Meho & Sonnenwald, 2000; Hickson, 1991), and marketing (Baumgartner & Pieters, 2003).

These types of works are common in Anglo-Saxon countries, but in Spanish the highest-impact journals of communication have not published enough research articles of this type (productivity and/or visibility). Communication research with a greater emphasis on quantitative analysis and a greater exploitation of numerical data is very recent. Martinez and Saperas (2011), for instance, have examined the articles published in four years (1998, 2002, 2003 and 2007) by four of the most relevant Spanish communication journals **[3]**, with a total sample of 285 texts, of which 235 were written by authors working in Spanish universities or research centres.

The most important conclusion of their study was that "the Spanish research on communication focuses on the study of journalism and more specifically on journalistic discourses". Other conclusions were that: there is a scarce presence of articles from Latin America; the majority of Spanish articles come from universities (80%), especially public universities (60%), so only one in four articles come from

private centres; most studies are focused on media content (53.2%); there are "important methodological deficiencies in the Spanish research" due to the lack of reception or effects studies; empirical research is predominant (75%), although 62% of it is not "solvent" because it exhibits "methodological deficiencies"; the most commonly used quantitative methods are content analysis and secondary analysis of data.

Castillo and Carretón (2010) analysed 10 Spanish journals **[4]** for a year (2008). Some of their conclusions are related to this article: 1) 53.7% of authors are men and 46.3% are women; 2) women collaborate more than men - 32,57% share authorship while only 23.15% of male authors do so; 3) the most active universities in 2008 were the Autonomous University of Barcelona (12.4%), non-university institutions (8.7%), the Complutense University of Madrid (8.2%), the University of the Basque Country (7.7%), and the Rey Juan Carlos University (5.6%); 4) the most common subjects are: journalism (22.3%), social responsibility in the media (16.4%), television (13.7%), advertising (9%), internet and new technologies (8.2%) and public relations (7.4%); 5) the predominant methods are quantitative, which are used in 53.9% of the articles (content analysis is predominant), and they are followed by qualitative techniques, used in 22.2% of articles (the most predominant are interview and participant observation), while 23.9% of articles are theoretical; and 6) articles of "up to two authors" are predominant (90.2%).

Lopez-Ornelas (2010) analysed 878 articles published by the *Revista Latina de Comunicación Social* (Latino Journal of Social Communication) from 1998 to 2009. Her work focused on five bibliometric indicators: gender, academic degree, country of origin, co-authorsip, and institutional affiliation. The results indicate that 44% of the authors were women and 56% were men; the majority of authors had Ph.D. degrees (42.02%), 40.21% had B.A. degrees and 10.41% were Ph.D. students; the average number of authors per article was 1.047, with 73% of unique authors and 27% co-authors, of which the majority were men (51%); 55% of authors were Spanish (575), while the other most-published countries were Argentina (132), Mexico (82), Venezuela (53), Costa Rica (44), and Brazil (39); Finally, the most-published universities were the University of La Laguna (119), the University of Seville (67), the Complutense University of Madrid (46), the University of the Basque Country (43), and the Autonomous University of Barcelona (42).

Meanwhile, Colle (2009) examined the subjects covered in almost 800 articles published by the *Revista Latina de Comunicación Social* from 1998 to 2008, based on their keywords and titles (concurrence system). The research concluded that "in the eleven years, the focus has been on the press and journalism, television and new digital technologies (Internet)". There has also been an interesting group of articles

about graphic expression. Spain, Argentina and Mexico stand out as the most referred countries, probably because they were the "countries from where more articles have been received" (Colle, 2009: 78).

Before these four articles were published, some authors had already conducted studies with bibliometric references. Firstly, Giménez and Alcaín (2006) evaluated the Spanish journals of journalism during 2004 and 2005, by using various indicators developed by the Spanish Centre for Scientific Information and Documentation (*Centro de Información y Documentación Científica-CINDOC*). This study concluded that there was a "basic group of journals" that was far behind other foreign publications in terms of impact. Afterwards, Martínez (2009) carried out a three-stage historical review of communication research in Spain from the 1960s. This review made some proposals to enhance empirical research by following the "methodological frameworks of the social sciences", "to strengthen the scientific training in the social sciences", to redesign Ph.D. programmes and to promote "thematically specialised programmes" with specialised researchers, "to end with the isolated and uncoordinated groups", "to build a new institutional framework for research", "to develop the prestige of university publications" and, finally, "to unify the areas of knowledge". Finally, León (2007) analysed the themes of 77 articles published from 1997 to 2005 by three Latin American journals **[5]** and identified the three main ones: a) the processes of globalisation and the current development of social communication in Latin America, b) the current and prospective impacts of the information society in Latin America, and c) the statute that should lead communication studies in Latin American to face the new models of society and the "crisis" of the social sciences.

Other scholars have subjected Spanish journals to bibliometric analyses but focusing on specific disciplines: 1) Roca and Mensa (2009) investigated the methods used in the articles on advertising creativity in Anglo-Saxon journals. 2) Del Río (2006a, 2006b) investigated the content of the articles on advertising creativity, and revealed the little interest of scholars for this field and the need for more research on this area, and established, in a second article, a ranking of the authors who had published in Anglo-Saxon journals. 3) Castillo and Xifra (2006) studied Spanish Ph.D. theses on public relations presented from 1965 to 2005 and concluded that this field had been poorly studied and needed more Anglo-Saxon theoretical references. 4) Mariños and López (2006) reviewed the state of the art in communication studies on framing and proposed four areas of work; described their main strengths and weaknesses; and listed the most outstanding authors in Spanish journals (1997-2007) and their contributions in different conferences.

Another example outside academic journals is the Reports on the field of Communication published by the Autonomous University of Barcelona every two

years, which deal with communication research but only in Catalonia (Moragas *et al.*, 2009 and 2007).

Based on the previous literature review, it seems that individual and institutional research productivity studies need to be further developed in Spain in order to strengthen this area of study.

3. Methods

Quantitative content analysis was used in this study to describe individual and institutional productivity trends and types (Hernández, Fernández, Baptista, 2008). The analysis covered all the articles published by *Zer* from 1996 to 2005 (220 articles) in order to offer as much information as possible and to avoid any sampling error associated with this type of method.

3.1. Objectives

This study of the individual and institutional research productivity of a journal of communication over a 10-year period is the first of its kind in Spain, and it aims to complement the work conducted by other academics and the data provided by other main sources of bibliometric information **[6]**.

This study has three main types of objectives related to the articles, authors and universities. Regarding the articles, the aim is to offer general information about their authors and universities (tables 1 and 2, production indicators). In terms of authors, the objectives are: a) to establish a weighted ranking **[7]** of authors (table 3, production indicator); b) to establish the number of articles in which each author has participated (table 3, cooperation index **[8]**); c) to determine the degree of collaboration between authors (table 4, cooperation index); and d) to identify the professional occupation of authors (table 5). With regards to universities, the objectives are: a) to establish a weighted ranking of universities based on the number of articles in which their members have participated (table 6, production indicator); b) to establish the participation of each university in articles (table 6, production indicator); and c) to establish the degree of collaboration between universities (table 7, cooperation index).

Guided by these objectives, the article will offer objective information to evaluate the individual and institutional research productivity in *Zer*. The study does not include objectives related to impact and visibility indicators.

3.2. Reasons behind the selection of *Zer*

This research focuses on the analysis of *Zer Journal of Communication Studies* (printed version), from its launch in 1996 until 2005. This publication was chosen for

several reasons: 1) "According to the A+B rating index **[9]**, *Zer* is the best rated journal (87.07), the publication in which most researchers want to publish their work, and one of the top three most relevant -national and international- communication journals, according to the opinion of specialists" (Giménez and Alcaín, 2006: 119); 2) it is the journal in which most researchers choose to publish their latest works and is the journal of communication with the highest impact factor according to the Impact Index of Spanish Journals of Social Sciences (*In-RECS*, 0.142); 3) it is among the top three journals of communication with the highest impact (1994-2006) **[10]**; 4) it is one of the twelve Spanish communication journals indexed by international databases **[11]**; 5) it was rated "A" (very high **[12]**) by the Spanish Institute for Documental Studies on Science and Technology (*IEDCYT*); and 6) because authors are familiar with its format and this facilitates its encoding.

Research productivity studies based on a single journal are common when: large periods of time are examined (Inkpen & Beamish, 1994, Journal of International Business Studies 1970-94; Muncy, 1991, Journal of Advertising 1972-1991; Cote, Leong, & Cote, 1991, Journal of Consumer Research: 1974-86;); when the area under analysis has been poorly studied (Duhon, Henthorne & Williams, 2005; Journal of Small Business Management 1994-2003; Honeycutt & Paul, 2004, Health Marketing Quarterly 1991-2002; Ford, Latour & Henthorne, 2001, Industrial Marketing Management 1971-1988; Kent & Rush, 1977, Journalism Quarterly 1964-73); and when they are conducted to commemorate anniversaries (West, 2007, International Journal of Advertising 1992-2006; Malhotra, 1996, Journal of the Academy of Marketing Science 1986-95; Muncy, 1991, The Journal of Advertising: a twenty years appraisal; Grether, 1976, Journal of Marketing 1936-75; Applebaum, 1947, Journal of Marketing 1936-1946).

3.3. Sample and procedure

After the journal was chosen, we determined the sample. Like in other productivity studies (e.g. Soley, 1983), our sample was composed of research articles that were subjected to blind peer evaluation. A total of 220 articles were identified (see table 1), after excluding book reviews, inaugural speeches, tributes, obituaries, summaries of journals and articles by the advisory board. In a previous article, Martínez and Saperas (2011) analysed 235 texts. The descriptive statistical results are presented in tables that reflect the distribution of frequencies.

The selected articles were encoded based on 14 criteria **[13]**: 1) journal; 2) volume; 3) title; 4) publication year (1996-2005); 5) name(s) of author(s); 6) occupation of author(s), according to the contractual relationship with the university; 7) gender of author(s); 8) university affiliation of author(s); 9) university's geographical scope; 10) article's field of knowledge (audiovisual communication,

communication theory, journalism, advertising, public relations, etc.); 11) number of authors per article (collaborations between authors); 12) weighted number of authors per article (1/number of authors per article); 13) number of universities per article (collaborations between universities); and 14) weighted number of universities per article (1/number of universities per article).

Table 1. Number of research articles published by *Zer* from 1996 to 2005

Year	Number of articles (*a*)	% from the total period	Authors (*b*)	Average article collaboration index per author (*a*/*b*)	Average author cooperation index per article *b*/*a*)
1996	9	4.09	9	1	1
1997	24	10.90	33	0.73	1.37
1998	27	12.27	40	0.68	1.48
1999	26	11.81	44	0.60	1.69
2000	27	12.27	44	0.61	1.62
Subtotal: 10 numbers 1995-2000	**113**	**51.34**	**170 (AVG: 34)**	**0.72**	**1.43**
2001	25	11.36	53	0.47	2.12
2002	20	9.09	27	0.74	1.35
2003	21	9.54	37	0.57	1.76
2004	21	9.54	28	0.75	1.33
2005	20	9.09	32	0.63	1.6
Subtotal: 10 numbers 2001-2005	**107**	**48.62**	**177 (AVG: 35.4)**	**0.63**	**1.63**
Total: 20 numbers 1996-2005	**220 (AVG: 22)**	**100**	**347 (AVG: 34.7)**	**0.60**	**1.57**

Note: AVG = average

From this codification two databases were created in Microsoft Excel: one about the authors (347) and one about the articles (220) (published by *Zer* from 1996 to 2005).

The importance of authors in terms of productivity was determined based on two axes: number of participations and weighted contribution, which was calculated with the following fractional formula: 1.00/number of authors who signed the article. For example, if an article was signed by one author the weighted value is 1.00, if it was signed by two authors the weighted value is 0.5, and if it is signed by three authors the value is 0.33, and so forth. The concept of weighted authorship is widely

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used in the English-speaking world to build productivity rankings (e.g. Pasadeos & Renfro, 1992; Barry, 1990; Soley & Reid, 1988).

Authors' occupations were divided into six groups:

1) Full-time professors: Permanent staff like *Catedráticos* (the equivalent to Senior lecturers in the UK or a Chair professors in the US) and *Profesores titulares* (Full Professors), and temporary staff like *Profesor Contratado Doctor* (the equivalent to a Reader in the UK or an Associate Professor in the US) and Assistant Professors.

2) Part-time professors: Those pursuing an academic career (lecturers, assistant professors, teaching fellows and similar occupations) or in training (PhD students and research fellows) and *profesores asociados* (communication professionals who do university teaching but do not pursue an academic career nor have Ph.D. degrees, also known as part-time instructors).

3) Researchers: those that do not do university teaching.

4) Communication professionals: those that do not do university teaching.

5) Unspecified

6) Unknown (lost data)

The importance of productivity for universities was established by following only the fractional criterion to avoid repetition (see Zou, 2005). The data was obtained from the information provided by the article at the time of its publication. Therefore, the study did not consider the possible changes of university undertaken by professors after the publication of the article.

4. Results

4.1. General data

The results presented here have been obtained from the analysis of 220 articles, written by 244 authors, from 48 different universities. Table 2 shows the average number of authors and universities per article (1.58 and 1.035, respectively). The average number of authors found in this study is considerably lower than that found in previous studies. For instance Soley & Reid (1988) reported 1.8 authors per article.

Table 2. Average number of authors and universities per article in *Zer* from 1996 to 2005 (Production indicators)

	1996-2005	Variation from 1996-2000 to 2001-2005	2001-2005	1996-2000
Weighted average number of authors per article (with repetition)	1.58	+0.02	1.59	1.57
Average number of universities per article (with repetition)	1.035	+0.03	1.05	1.02
Number of contributing authors (with repetition)	347	-7	177	170
Number of female authors	117 (33.7%)	+21 (+12%) Males: -8%	69 (38.98%)	48 (28.23%)
Number of contributing universities (with repetition)	227	-3	112	115
Number of contributing authors (without repetition)	244	+34	156	122
Number of universities (without repetition)	48	+1	32	31
Absolute number of articles	220	-6	107	113
Average number of articles per year	22	-1.2	21.4	22.6

Notes: 1) Values "with repetition" include repeated authors and/or universities, whose participations depend on the number of articles they sign, e.g. if the same author or university sign two articles they will be counted twice. 2) Values "without repetition" do not include repeated authors or universities. For instance, if an author signs two articles he or she may be counted only once, if the two articles have been written in collaboration with another author (0.5 + 0.5 = 1). If a university participates in 2 articles, it will be counted only once, if the articles have been written in collaboration with another university (0.5 + 0.5 = 1).

4.2. Most active researchers [14]

Table 3 provides a list of the 45 most productive authors **[15]** with their weighted contributions and their total number of participations (see Henthorne, Latour & Loraas, 1998; Barry, 1990, Schweitzer, 1988). These 45 authors published 90.25 weighted articles, which account for 41.02% of the 220 weighted articles in *Zer*. The table does not include the 199 authors who only published one weighted article or less in the ten-year period under study.

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Table 3: Ranking of authors in *Zer* from 1996 to 2005, based on their weighted contribution (Production indicators, with cooperation index)

Weighted ranking	Author	Weighted articles	Participations in articles	Article contribution per year	Last university from where the author published	Occupation
1	Díaz, Javier	7	7	0.7	U. of the Basque Country	Full Professor
2	López, Xosé	3.8	5	0.5	Santiago de Compostela	Full Professor
3	Barea, Pedro	3	3	0.3	U. of the Basque Country	Full Professor*
4	Ramírez, Txema	2.7	4	0.4	U. of the Basque Country	Full Professor*
5	Fernández, Emilio	2.5	5	0.5	Autonomous U. of Barcelona	Lecturer*
5	Sampedro, Víctor	2.5	3	0.3	University of Salamanca	Full Professor
Top 5. Subtotal: 6 authors		**21.5 (AVG: 3.58)**	**27 (AVG: 4.5)**	**2.7 (AVG: 0.45)**	-	-

Weighted ranking	Author	Weighted articles	Participations in articles	Article contribution per year	Last university from where the author published	Occupation
7	Armentia, José Ignacio	2.3	6	0.6	University of the Basque Country	Senior Lecturer
7	Caminos, José-María	2.3	6	0.6	University of the Basque Country	Senior Lecturer
9	Bilbao, José	2.2	3	0.3	University of the Basque Country	Full Professor
10	Álvarez, José-María	2	4	0.4	University of the Basque Country	Full Professor*
10	Aznar, Hugo	2	2	0.2	San Pablo–CEU University	Full Professor*
10	Cáceres, María-Dolores	2	2	0.2	Complutense U. of Madrid	Full Professor
10	Canel, María-José	2	2	0.2	University of Navarra	Full Professor*
10	Carrillo, María-Victoria	2	2	0.2	University of Extremadura	Full Professor
10	Cebrián, Mariano	2	2	0.2	Complutense U. of Madrid	Senior Lecturer
10	De-León, José-Luís	2	2	0.2	University of the Basque Country	Senior Lecturer
10	Domínguez, Tania	2	2	0.2	Central U. of Moscow (Russia)	Com. Professional
10	Elizalde, Luciano	2	2	0.2	Austral University (Argentina)	Unknown
10	Farré, Jordi	2	2	0.2	Public University of Tarragona	Temp. Full Professor*
10	Humanes, María-Luisa	2	2	0.2	University of Salamanca	Assistant Professor *
10	Iglesias, Francisco	2	2	0.2	Complutense U. of Madrid	Full Professor
10	Jones, Daniel-E.	2	2	0.2	Ramon Llull University	Full Professor
10	Lozano, José-Carlos	2	2	0.2	Monterrey Inst. of Technology	Researcher
10	Mínguez, Norberto	2	2	0.2	Complutense U. of Madrid	Assistant Professor*
10	Montoya, Norminanda	2	2	0.2	Autonomous U. of Barcelona	Assistant Professor*
10	Vacas, Francisco	2	2	0.2	Extremadura	Part-time Professor
Top 10. Subtotal: 26 authors		**62,3 (AVG: 2.3)**	**78 (AVG: 3)**	**7.8 (AVG: 0.3)**	-	-

Weighted ranking	Author	Weighted articles	Participations in articles	Article contribution per year	Last university from where the author published	Occupation
27	Bezunartea Ofa	1.83	3	0.3	University of the Basque Country	Senior Lecturer
28	Garitaonandia, Carmelo	1.75	6	0.6	University of the Basque Country	Senior Lecturer
29	Arana, Edorta	1.58	3	0.3	University of the Basque Country	Full Professor*
29	Oleada, José	1.58	5	0.5	University of the Basque Country	Part-time Professor
31	Coca, César	1.53	3	0.3	University of the Basque Country	Full Professor
32	Idoyaga, Petxo	1.5	3	0.3	University of the Basque Country	Full Professor*
32	Castelló, Enric	1.5	2	0.2	Autonomous U. of Barcelona	Assistant Professor*
32	Franquet, Rosa	1.5	2	0.2	Autonomous U. of Barcelona	Senior Lecturer
32	García, José-Alberto	1.5	2	0.2	University of Navarra	Part-time Professor
32	García, Nuria	1.5	2	0.2	Autonomous U. of Barcelona	Full Professor
32	Martín, Marta	1.5	2	0.2	University of Alicante	Full Professor*
32	Miguel, Juan-Carlos	1.5	2	0.2	University of Valencia	Full Professor*
32	Toral, Gotzon	1.5	2	0.2	University of the Basque Country	Part-time Professor*
40	Igartua, Juan-José	1.48	4	0.4	University of Salamanca	Full Professor
41	Cantalapiedra, María-José	1.33	2	0.2	University of the Basque Country	Full Professor*
42	Basterretxea, Jose-Inazio	1.25	2	0.2	University of the Basque Country	Reader *
42	Elexgaray, Jon	1.25	2	0.2	University of the Basque Country	Researcher
44	Jakobe, Gorka	1.2	2	0.2	University of the Basque Country	Full Professor
45	Azpillaga, Patxi	1.17	3	0.3	University of the Basque Country	Part-time Professor*
Top 45. Subtotal: 45 authors		**90.25 (AVG: 2.005)**	**130 (AVG: 2.88)**	**13.2 (AVG: 0.293)**	-	-

Weighted ranking	Author	Weighted articles	Participations in articles	Article contribution per year	Last university from where the author published	Occupation
	89 authors with 1 weighted article	89	90	-	-	-
	44 authors with 0.5-1 weighted articles	23.59	56	-	-	-
	66 authors with -0.5 weighted articles	17.2	71	-	-	-
Total: 244 Authors		**220 weighted articles**	**347 participations of authors**	-	-	-

An analysis of table 3 indicates that only 17 authors appeared in more than two articles, which represents 6.97% of the 244 authors who published in *Zer*, and that only nine authors, 3.69% of the total, contributed more than two weighted articles **[16]**. Not a single female author published more than two weighted articles. The number of authors increases to 26, 10.66% of the total, if we consider a minimum of two weighted articles. Only 45 authors published more than one weighted article, i.e. 18.44% of the 244 authors who wrote 220 weighted articles.

Research | DOI: 10.4185/RLCS-067-957-287-316 | ISSN 1138-5820 | Year 2012

Notes: 1) Article contribution per year = Participations in articles /10 years **[17]**. 2) *authors were contacted via email and phone to update their data, as it last appeared in *Zer*. The updating does not affect the results in table 5.

4.4. Collaboration between authors

Table 4 lists the number of authors per article. As shown in table 3, only three of every ten articles were made in collaboration. Unlike in Anglo-Saxon publications, the single-authored article is predominant in *Zer* (in almost 71% of cases, i.e. in 156 of the 220 articles). This practice decreased significantly in the last years under analysis. There is a slight trend to work in pairs, which has gone from 10.62% to 17.76%. West (2007), who studied a similar period, pointed out that the number of single-authored articles seems to be decreasing in favour of multi-authored articles. Stephen & Geel (2007) also indicated that "one of the strongest trends is the dramatic decline in the number of single-authored articles in favour of articles multi-authored articles".

Table 4. Number of authors for article in *Zer* from 1996 to 2005

(Cooperation Index)

Authors per article	1996-2005	Variation From 1996-2000 to 2001-05	2001-2005	1996-2000
	Weighted articles		Weighted articles	Weighted articles
1	70.91% (156)	-16.47%	66.36% (71)	75.22% (85)
2	14.09% (31)	+58.33%	17.76% (19)	10.62% (12)
3	8.64% (19)	+37.50%	10.28% (11)	7.08% (8)
4	3.18% (7)	-25.00%	2.80% (3)	3.54% (4)
5	1.82% (4)	-66.67%	0.93% (1)	2.65% (3)
More than 5	1.36% (3)	+100.00%	1.87% (2)	0.88% (1)
Total	100.00% (220)	-5.31%	100.00% (107)	100.00% (113)
Average number of authors per article	1.58			

Research | DOI: 10.4185/RLCS-067-957-287-316 | ISSN 1138-5820 | Year 2012

4.5. Authors' occupation

The codification of this variable was based on the biographical information provided by each article. As table 5 shows, the most predominant occupation among authors is full-time professor, i.e. Full Professors and Senior Lecturers (or Chair professors), which constituted 26.60% (with 59 weighted articles) of the sample. Part-time professors only constituted 10.40% (23 weighted articles) of the authors. Previous studies on productivity in Anglo-Saxon publications have provided similar results **[18]**. However, data from this research do not confirm the results of Soley and Reid (1983), who stated that there is an inverse relationship between academic rank and the production of scholarly articles **[19]**.

Table 5. Occupation of authors published by *Zer* from 1996 to 2005

Authors' occupation	Percentage and number	Weighted articles	Category	1996-2005 Weighted articles	Variation 1996-2000 to 2001-05	2001-2005 Weighted articles	1996-2000 Weighted articles
Full-time professors	21.61% (75)	26.60% (59)	Senior Lecturer	4.41% (10)	-33.33%	3.27% (4)	5.49% (6)
			Full Professor	22.19% (49)	+18.18%	24.67% (26)	19.85% (22)
Part-time professors	11.53% (40)	10.40% (23)	Pursuing an academic career	3.09% (7)	+400.00%	5.05% (5)	1.24% (1)
			In training	3.67% (8)	0%	3.96% (4)	3.39% (4)
			Communication professionals	3.20% (7)	+150.00 %	4.52% (5)	1.95% (2)
Researchers	9.80% (34)	6% (13)	Researcher	6% (13)	+33.3%	7.10% (8)	4.96% (6)
Communication Professional	3.17% (11)	3.47% (8)	Com. Professional	3.47% (8)	*Infinite*	7.14% (8)	0.00% (0)
Unspecified	51.59% (163)	47.39% (104)	Unspecified	43.75% (96)	-23.64%	38.79% (42)	48.45% (55)
			Others	4.08% (9)	-20%	3.40% (4)	4.72% (5)
Unknown (lost data)	6.92% (24)	6.13% (13)	Unknown	6.13% (13)	-81.82%	2.10% (2)	9.96% (11)
Total	100% (347)	100% (220)		100% (220)	-5.31%	100.00% (107)	100% (113)

Note: "Others" include Deans, Vicedeans, graduates and undergraduate students.

4.6. The most productive universities in communication research

Table 6 identifies a total of 20 universities that have published at least two articles in *Zer* from 1996 to 2005. It also shows the three most productive universities: the University of the Basque Country (UPV-EHU) with 79 weighted articles, the Autonomous University of Barcelona (UAB), with 26.5, and the Complutense University of Madrid (UCM), with 20.5. These three universities have published 126 weighted articles, i.e. 57.27% of all analysed articles (220) **[20]**.

It is interesting to note that the study of Castillo and Carretón (2010) on research articles published in 2008 offers a similar ranking. However, in the study of Castillo and Carretón the participation of these universities in the ten highest rated journals descends to 28.3% of articles. This seems to indicate that there are more universities publishing today than before 2005. The creation of numerous Schools of Communication Sciences in the 1990s could explain this democratisation.

In both studies, the highest ranked universities are state-owned institutions. This fact was already pointed out in the study of Martínez and Saperas (2011), which claims that 60% of the analysed articles come from this type of institutions, and Lopez-Ornelas's analysis (2010) of the *Revista Latina de Comunicación Social*, where the first five universities are also state-owned institutions. Another noticeable fact in table 6 is that only 4 of the 20 most active universities are foreign, particularly Latin American.

These universities published only 8.5 weighted articles, 3.86% of the total (220). This trend also coincides with the study of Martinez and Saperas (2011), which highlights the limited presence of Latin American universities during 1998, 2002, 2003 and 2007. However, the *Revista Latina de Comunicación Social*, perhaps due to its relations with Latin America, included 45% of non-Spanish authors (López-Ornelas, 2010) and featured three major contributing countries: Spain, Argentina and Mexico (Colle, 2009). The data provided in tables 3 and 6 confirm only partially Schweitzer's assertion (1988) that "the main researchers are not necessarily associated with the most productive universities".

The most productive authors belong to the University of the Basque Country (3 authors with 12.7 weighted articles), the University of Santiago de Compostela (1 author with 3.8 weighted articles); the Autonomous University of Barcelona (1 author with 2.5 weighted articles); and the University of Salamanca (1 author with 2.5 weighted articles).

Table 6. Ranking of universities in *Zer* from 1996 to 2005, based on weighted articles (Production indicators)

Weighted ranking	University / Institution	Weighted article contribution	Percentage of weighted articles from the total	Number of participations	Number of authors (without repetition)	Ownership	Location
1	U. of the Basque Country	79	35.91%	81	92	State	Basque Country
2	Autonomous U. of Barcelona	26.5	12.05%	30	31	State	Catalonia
3	Complutense U. of Madrid	20.5	9.32%	21	17	State	Madrid
Top 3. Subtotal: 3 universities		**126**	**57.27%**	**132**	**139**	-	-
4	U. of Salamanca	8	3.64%	8	13	State	Castile and León
5	U. of Navarra	7	3.18%	7	9	Private	Navarra
5	U. of Santiago de Compostela	7	3.18%	7	6	State	Galicia
Top 5. Subtotal: 6 universities		**141**	**64.09%**	**147**	**161**	-	-
7	U. of Extremadura	4	1.82%	4	2	State	Extremadura
7	U. of Malaga	4	1.82%	4	5	State	Andalucía
7	Pompeu Fabra U.	4	1.82%	4	2	State	Cataluña
7	Pontificia U. of Salamanca	4	1.82%	4	4	State	Castile and León
11	Monterrey Institute of Technology	3	1.36%	3	2	Private	Mexico
11	U. of Alicante	3	1.36%	3	3	State	Valencia
11	Ramon Llull U.	3	1.36%	3	2	Private	Catalonia
11	U. of Vigo	3	1.36%	3	3	State	Galicia
11	San Pablo-CEU U.	3	1.36%	2	5	Private	Madrid
16	Austral U. of Buenos Aires	2	0.91%	2	1	Private	Argentina
16	Carlos III U.	2	0.91%	2	3	State	Madrid
16	U. of Buenos Aires	2	0.91%	2	4	State	Argentina
19	U. of Seville	2	0.91%	2	2	State	Andalucía
20	Central U. of Venezuela	1.5	0.68%	2	2	State	Venezuela
Top 20. Subtotal 20 universities		**62.5**	**28.40%**	**62**	**68**	-	-
	Rest of universities	**25**	**11.37%**	**27**	**30**	-	-
	Lost values	**6.5**	**2.96%**	**6**	**6**	-	-
		220	**100%**	**227**	**244**	-	-

Note: There is a total of 227 university participations, because 7 articles were written in collaboration between universities.

4.7. The collaboration between universities

The difference between the participation and weighted participation of universities is minimal (see table 6), which suggests that universities hardly collaborate in the publication of articles. Table 7 confirms this fact: only 3% of the weighted articles are written in collaboration. The universities with more collaborations are the University of the Basque Country (5 articles) and the Autonomous University of Barcelona (5 articles). Three of these collaborations were made with non-Spanish universities (the University of Bordeaux, France; the Federal University of Goiás, Brazil; and the Central University of Venezuela).

Table 7. Collaboration between universities in *Zer* from 1996 to 2005 (Cooperation Index)

Universities per article	1996-2005		Variation 1996-2000 a 2001-05		2001-2005		1996-2001	
	Weighted articles	Participations of universities	Weighted articles	Participations of universities	Weighted articles	Participations of universities	Weighted articles	Participations of universities
1	97% (213)	94% (213)	-8.11%	-8.11%	95% (102)	91% (102)	98% (111)	97% (111)
2	3% (7)	6% (14)	+150%	+150%	5% (5)	9% (10)	2% (2)	3% (4)
3 or more	0% (0)	0% (0)	0%	0%	0% (0)	0% (0)	0% (0)	0% (0)
Total	100% (220)	100% (227)	-5.31%	-2.61%	100% (107)	100% (112)	100% (113)	100% (115)
Average number of universities per article		1.03		+0.03		1.05		1.02

5. Discussion and conclusions

5.1. Implications for the research community

Although several bibliometrics studies have been conducted in the Spanish-language within the field in the field of communication (Martínez and Saperas, 2011; Castillo and Carretón, 2010; López-Molero, 2010; Colle, 2009; Martinez, 2009; Giménez and Alcaín, 2006; León, 2007) and within specific disciplines (Roca and Mensa, 2009; Del-Río, 2006a, 2006b; Castillo and Xifra, 2006; Mariños and López, 2006), this study is unlike any of them. In order to find individual and institutional productivity studies in the field of communication or any of its disciplines, one must seek in the English-speaking world (recent examples are Hickson *et al*., 2009; Seggie & Griffith, 2009, Ford & Merchant 2008; West, 2007; Zou, 2005; Hickson, Bodon & Turner, 2004).

We have focused on the trends in communication research in Spain from the data published by *Zer* on authors and institutions from 1996 to 2005. Productivity studies are needed when a discipline has reached maturity (Atkin & Jeffres, 1998). This longitudinal study has analysed the authors of the research articles published by *Zer* from 1996 to 2005, by following the tradition of productivity studies published in Anglo-Saxon journals of communication. Thus, the frequency of publication, or

productivity, has been examined across authors (244 with 347 participations) and universities (48 with 227 participations).

A total of 220 articles were examined by means of content analysis, which provided quantitative information about *Zer*'s contributors from 1996 to 2005. During this period, *Zer* has managed to become one the most prestigious Spanish journals of communication. If productivity studies "reflect the evolution of a field of knowledge" (Inkpen & Beamish, 1994), then the obtained data reflect the state of communication research in Spain.

This study had three objectives: 1) provide general data on authors and universities; 2) to create a ranking of the most productive authors and to identify their main features; 3) to create a ranking of the most productive universities and to identify their main features. The results that have been presented in the seven preceding tables reveal different relevant conclusions.

1) A small group of researchers has made multiple and frequent contributions, i.e. they are the leaders in communication research in *Zer*. Together, forty-five authors have only contributed 90.25 weighted articles, of a total of 220. Approximately 18.44% of authors produce 41.02% of the articles. It would be very beneficial for other researchers to join this small group, since this would involve a sustained increase in the production of research articles.

2) The results suggest that in general terms productivity is low in *Zer*, since the vast majority of authors fail to produce more than one weighted article (199 of 244), in comparison to a minority of authors that has produced more than one weighted article (45).

3) There is little collaboration between authors. Single-authored articles predominate (156 articles, 70.91%), followed far behind by articles with two and three authors (14.09% and 8.64%, respectively). These figures are similar to those offered by Castillo and Carretón (2010) and López-Ornelas who indicate that the percentage of multi-authored articles reaches 27.86% and 27%, respectively.

4) In terms of occupation, the most productive authors are full-time professors, i.e. Full Professors and Senior Lecturers/Chair professors (who produced 26.60% of the published articles or 59 weighted articles).

5) In 10 years, 48 universities have published in *Zer*, but only three have produced almost 60% of the weighted articles: the University of the Basque Country with 79 articles (35,91%), the Autonomous University of Barcelona with 26.5 articles (12,05%), and the Complutense University of Madrid with 20.5 articles (9,32%).

Research | DOI: 10.4185/RLCS-067-957-287-316 | ISSN 1138-5820 | Year 2012

These figures are similar to the ones provided by Castillo and Carretón (2010), who indicated that of the analysed articles 7.7%, were produced by the University of the Basque Country, 12.4% by the Autonomous University of Barcelona, and 8.2% by the Complutense University of Madrid. The only disparity is the fact that *Zer* has more authors from its host university: the University of the Basque Country. This fact also occurs with the *Revista Latina de Comunicación Social*, which has also published more authors from its host university, the University of La Laguna (López-Ornelas, 2010). The predominance of the state universities is huge, and this fact had been already pointed out by Martinez and Saperas (2011) and Lopez Molero (2010).

6) Collaboration between universities is scarce. Only seven articles were written in collaboration, which represents only 3% of the total (220).

7) There was a scarce presence of Latin American universities, 3.86% of the total, just like in the study by Castillo and Carretón (2010), but this situation is different from journal to journal. For instance, the participation of Latin American universities in the *Revista Latina de Comunicación Social* reaches 45% (López-Ornelas, 2010), with the outstanding participation of Spain, Argentina and Mexico (Colle, 2009).

5.2. Limitations of the study and future lines of research

Despite having studied one of the most important communication journals in Spain (the IEDCYT institute gives *Zer* the A rating), this research has some deficiencies, which could be set as future lines of research.

1) The results cannot be applied to the entire field of communication. Being the first study on individual and institutional research productivity carried out in Spain, it only analysed an academic journal and therefore it would be desirable to extend the sample to different journals, both generic (like *Comunicación y Sociedad, Anàlisi, Revista Latina de Comunicación Social*, etc.), and specialised, given the fragmentation in the field (*Questiones Publicitarias, Pensar la Publicidad*, etc.).

2) We studied a relatively broad period, 1996 to 2005, but it would be interesting to study more recent periods to better appreciate the evolution of communication studies.

3) The aim was never to evaluate the quality of articles but to identify the most productive authors and universities from a quantitative perspective, by following the methods used to examine Anglo-Saxon journals. As Atkin & Jeffres (1998) say, "Some high quality articles never get published, while many bad ones do get published". However, as Soley & Reid (1988) have pointed out in defence of this type of studies, "articles productivity is widely recognised by social researchers as a substitute measure to evaluate the quality of authors and institutions".

4) This type of studies could be extended to books, monographs, book chapters, conference proceedings (see Bodon, Powell & Hickson, 1999), and even doctoral theses (see Castillo and Xifra, 2006).

5) It would be interesting to compare and contrast this study with future works in order to gain a historical perspective (Hickson, Bodon & Turner, 2004).

6) This study could also be replicated year after year in the whole field of communication (see Castillo and Carretón, 2010).

7) It would be very useful to establish, as the Anglo-Saxon world is already trying (Hickson, Turner, Bodon, 2003), whether the most productive authors are also the best professors.

5.3. Final conclusion

It is important for communication scholars to follow the steps of their Anglo-Saxon counterparts in this discipline. This analysis can be healthy and act as a motivating element in the different disciplines. "Productivity analyses give us information about various aspects of authors: where they come from, and when, how much, and how often they publish" (Barry, 1990). This first study on a Spanish journal of communication has identified the most active authors and universities in *Zer* (1996-2005).

Acknowledgements

The authors want to thank Doctor Alfons González for his comments and to the journalist Marta Rosella Gisbert and Celia Weil for their final review of the article.

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7. Notes

1. West (2007) and Pasadeos, Phelps & Bong-Hyun (1998) made a detailed and exemplified description of six types of studies. Soley & Reid (1988) restricted their description to three typologies.

2. According to Schweitzer (1988), the pioneers in communication studies are: Cole and Bowers (1973), *Research article productivity of the U.S. Journalism Faculties* [1962-1971]; Soley & Reid (1983), *Advertising article productivity of the U.S. Academy community* [1971-1980]; Vincent (1984) *Broadcast Research productivity of U.S*. [1984-1989].

3. *Anàlisi* (Autonomous University of Barcelona, published since 1980), *Comunicación y Sociedad* (University of Navarre, since 1988), *Estudios sobre el Mensaje Periodístico* (Complutense University of Madrid, since 1994), and *Zer* (University of the Basque Country, since 1996).

4. *Revista Latina de Comunicación Social*, *Zer* (*Revista de Estudios de Comunicación*), *Comunicación y Sociedad* (*Revista de la Facultad de Comunicación), Telos* (*Cuadernos de Comunicación, Tecnología y Sociedad), Comunicar* (*Revista de Medios de Comunicación y Educación), Anàlisi* (*Quaderns de Comunicació i Cultura*), *Sphera Pública* (*Revista de Ciencias de la Comunicación*), *Qüestiones publicitarias* (*Revista Internacional de Comunicación y Publicidad*), *Estudios sobre el Mensaje Periodístico* and *Trípodos*.

5. *Comunicación y Sociedad* published since 1989 in Mexico; *Signo y Pensamiento* published since 1982, in Colombia; and *Diálogos*, published since 1987 by FELAFACS.

6. Some of these sources are: 1) *DICE* (Difusión y Calidad Editorial de las Revistas Españolas de Humanidades y Ciencias Sociales y Jurídicas - Editorial Dissemination and Quality of Spanish Journals of Humanities and Social Sciences and Law); 2) *RESH* (Revistas Españolas de Ciencias Sociales y Humanas - Spanish Journals of Social Sciences and Humanities: Integrated evaluation and citation index); 3) IEDCYT (Institute of Documentary Studies on Science and Technology - Instituto de Estudios Documentales sobre Ciencia y Tecnología, formerly known as CINDOC), etc.

7. A weighted average is obtained by multiplying each quantity to be averaged by a particular value, or weight, summing up all the obtained values and dividing the result by the sum of all the weights (see www.rae.es, 22 September, 2008).

8. Number of authors or signatures for each work. This is an indicator of the use of the scientific literature. These indicators measure the relations that have existed between researchers and that have resulted in the joint publication of scientific results. They are based on authorship data.

9. The study of Giménez & Alcain (2006: 116) on the perception of the quality of journals indicates that: "A-rated Journals are considered very important and B-rated journals are considered important by professors in the area of journalism". *Zer* occupies the second position in the index.

10. IN-RECS: Indice de Impacto de Revistas Españolas de Ciencias Sociales - Impact Index of Spanish Journals of Social Sciences (http://ec3.ugr.es/in-recs/Comunicacion.htm).

11. 1. *Ámbitos. Revista Internacional de Comunicación*, REDALYC; 2. *Anàlisi: Quaderns de comunicació i cultura*, RAS (Russian Academy of Sciences) and DOAJ (Directory of Open Acces Journals); 3. *CIC. Cuadernos de Información y Comunicación*, DOAJ, IBSS (International Bibliography of Social Sciences), REDALYC and SA (Sociological Abstracts); 4. *Comunicación y Hombre*, DOAJ; 5. *Comunicación y Sociedad*, ASC (Academic Search Complete), CMMC (Communication Mass Media Complete), FRANCIS, IBSS (International Bibliography of Social Sciences); LLBA (Linguistics and Language Behavior Abstracts), SA, SCOPUS and SSCI (Social Science Citation Index); 6. *Comunicar*, ASC, CMMC, DOAJ, ERA (Educational Research Abstracts), FRANCIS, MLA (Modern Language Association), PAIS, REDALYC, SA, SCOPUS, SSCI; 7. *Estudios sobre el Mensaje Periodístico*, SCOPUS, SSCI; 8. *Historia y Comunicación Social*, A&HCI (Arts Humanities Citation Index), AHL (American History and Life), DOAJ, HA (Historical Abstracts), WPSA (Worldwide Political Science Abstracts); 9. *LOGO*, AP (Année Philologique); 10 *Revista de Comunicación y Salud*, DOAJ; 11. *Latina de Comunicación Social*, ARC, CMMC, DOAJ, MLA and REDALYC; 12. *Mediterránea*

de Comunicación, DOAJ; 12. *Zer*, CMMC and SA. Source: http://dice.cindoc.csic.es/. Consulted on 25 April, 2012).

12. Other communication journals have the following classification according to ANEP/FEYCT: *Ámbitos* (C, normal); *Anàlisi* (B, high); Área Abierta (C, normal); CIC. Cuadernos de Información y Comunicación (B, high); Comunicació. Revista de Recerca i d'Anàlisi (C, normal); Comunición y hombre (C, normal); Comunicación y Sociedad (A+, very high); *Comunicar* (A+, very high); Conexiones (C, normal); *Doxa* (B, high); *Estudios sobre el Mensaje Periodístico* (A+, very high); Fonseca. Journal of Communication (C, normal); *Historia y Comunicación Social* (B, high); Información y comunicación (C, normal); *Icono 14* (C, normal); Mediaciones Sociales (C, normal); *Pensar la publicidad* (B, high); Revista de la SEECI (C, normal); *Revista Latina de Comunicación Social* (A+, muy high); Vivat Academia (C, normal) and Zer (B, high). Source: http://dice.cindoc.csic.es/. Consulted on 25 April, 2012.

13. This article does not develop all the analysed criteria.

14. We borrowed the concept of "active researcher" from Hickson, Bondon and Turner (2004). In our research, authors are considered active when they have published more than one article over the 10-year period (1996-2005) under study, i.e. those that have published at least one weighted article every five years. This criterion was also used by Pasadeos and Renfro (1992), who consider as active those authors who had published at least three articles over a period of 15 years, and Schweitzer (1988) for a period of 6 years.

15. The initial aim of this article was to establish a ranking of the 50 most productive authors in *Zer*, but only 45 authors could be classified as "active researchers".

16. Burroughs *et al*. (1989) indicate the following about a 5-year study conducted by Booth and Butterfield (from 1981 to 1985): 1) the majority of researchers (95%) had produced three or less publications; 2) 1% of the scholars had produced 8 or more articles. Schweitzer (1988) points out that the productivity of articles based on the total points, among the top researchers, is in average less than one article per year. Only 18 of the top researchers had produced an average of one article per year. The list of top producers includes 25 authors who produced four or less articles over a six-year period.

17. According to Hickson *et al.* (1999), a prolific author publishes 1.5 articles per year. This figure increased to 2.5 in a subsequent research that covered from 1996 to 2001 (Hickson, Turner & Bodon, 2003).

18. The presence of full-time professors in other studies is as follows: 22% (Soley & Reid, 1983); 40% (Maquardt & Murdock, 1983); 26% (Clark, Hancock & Kaminski, 1987); 24% (Clark & Nessim, 1986); 24% (Soley & Reis, 1988); 27% (Barry, 1990).

19. Despite this assertion, we must bear in mind that in this study the percentage of authors who work as professors and did not specified their category is 47.39% (in terms of weighted articles).

20. If we compare these data with other studies, the results of concentration are similar, although the participation of universities is higher, perhaps as a result of the greater development of the field of communication in Anglo-Saxon countries: “30 universities, or 14.3% of the 210 Schools produced 57% of the weighted articles” (Schweitzer 1988); “The 20 most active universities have produced 51.1% of the articles” (Soley & Reid 1988).

HOW TO CITE THIS ARTICLE IN BIBLIOGRAHIES / REFERENCES:

Roca-Correa, D. and Pueyo-Ayhan, N. (2012): "*The scientific productivity in Communication across the journal Ze*", *Revista Latina de Comunicación Social*, 67, pages 287 to 316. La Laguna (Tenerife, Canary Islands): La Laguna University, retrieved on ___th of ____ of 2_____, from
DOI: 10.4185/RLCS-067-957-287-316

Article received on 12 April 2012. Submitted to pre-review on 14 April. Sent to reviewers on April 15. Accepted on 9 May 2012. Galley proofs made available to the authors on 12 May 2012. Approved by authors on 15 May 2012. Published on 19 May 2012.

Note: the DOI number is part of the bibliographic references and it must be cited if you cited this article.
