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A scientometric study of the journal *Profesional de la Información*

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Abstract. Bibliometric studies provide researchers with varied and important information that allow to obtain different indicators and to understand relationships in the dissemination of science. In this work, we analyse the production of the journal *Profesional de la Información*, the first Spanish journal to be included in the Information Science & Library Science category of the Journal Citation Reports (JCR). We determined the degree of collaboration and identified the most productive authors of this journal. We found an increase in collaborative authorship and a stagnation of the journal in the third quartile of the JCR. Most of the papers published in the journal are produced in Spain.

Keywords. scientific production, bibliometrics, journals, production patterns, Spain, collaboration.

1. Introduction

Bibliometric studies are a measurement tool that can be used to study the processes of production, communication and use of scientific information (Carrizo, 2000). Several interests can lead to carry out bibliometric studies, but they are mainly used to know the state of development, in terms of scientific thought, of a particular discipline, the identification of production patterns, the identification of the degree of scientific collaboration or the identification of citation patterns, among others. This type of work provides the researcher with the opportunity to learn about the different conceptual, production and collaboration trends in a particular area of knowledge (Maz-Machado, Jiménez-Fanjul & Madrid, 2015).

Bibliometric studies can be used to study specific journals or groups of journals to provide useful and up-to-date information for decision-making in aspects related to editorial lines, scientific policies or impact themes, as well as offering a series of indicators to identify content or issues that have not been investigated and which may become sources of future research problems.

The production of different countries has been analysed in relation to the same subject (Gupta & Mahesh, 2013) or it has been focused on a specific geographical area with a specialised subject (Muñoz-Ñungo, Rodríguez-Faneca & Gutiérrez-Rubio, 2020), to mention a few examples. It is a fact that scientific journals are the driving force behind the dissemination of specialised knowledge. In this sense, the role of journals in university accreditation systems and in the different calls for evaluation of research activity is undeniable (Meneses, Cano and Sánchez-Serrano, 2015).

At an international level, there are several studies that have analysed journals in the field of Sciences (Jayabal, & Balasubramanian, 2018) and Social Sciences (Şenel, & Demir, 2018). In the field of Information Science & Library Science, specific journals (Cascón-Katchadourian, Moral-Munoz, Liao & Cobo, 2020; Singh, K., Nayak, & Varma, 2017) or groups or journals (Castillo & Carretón, 2010; Jiménez-Contreras, Delgado-López-Cózar & Ruiz-Pérez, 2006) have been analysed in order to identify production patterns.

In short, all these studies corroborate that the analysis of some bibliometric indicators is a valid tool that can be used in order to try to establish the state of the art in a given field of knowledge.

Thus, the purpose of this study is to carry out a bibliometric analysis of the journal *Profesional de la Información* (EPI), since it was the first Spanish journal of the category Information Science & Library Science to be included in the Journal Citation Reports (JCR) in 2008. Its trajectory and relevant role within the pan-Hispanic field in relation to the discipline of information and communication has to be highlighted, as the journal has been publishing contributions on topics related to information and communication, as well as on bibliometric indicators, documentary institutions and information technologies, in addition to its related topics, since the year 1992. Therefore, a scientometric analysis of this journal can be useful when taking the pulse of the development of the discipline in Spain.

This journal was first published in 1992 under the name *Information World in Spanish* (IWE). Subsequently, in 1998, it changed its title to one similar to the current one, *El Profesional de la Información*. At the same time, the journal began to be indexed in different national and international databases and changed its International Standard Book Number (ISBN).

In 2006, *Profesional de la Información* was included in the bibliographic database Scopus (Elsevier) and in the Social Science Citation Index (Web of Science) of Clarivate Analytics. In 2008 it was included in the Journal Citation Reports (JCR). Currently, the journal is also indexed in other highly relevant databases or rankings, such as Information Science and Technology Abstracts (ISTA, by EBSCO), CSIC Indexes, Dialnet, ERIH Plus or the SCImago Journal & Country Rank (SJR). Aftwerards, the journal was also included in the category Communication of JCR.

2. Objectives

The objective of this study is to analyse the production patterns of the journal *Profesional de la Información.* On the other hand, the following secondary objectives are pursued:

- To study authorship patterns of the published literature.
- To identify the degree of collaboration among authors and countries publishing in this journal, as well as the nature of their collaboration.
- To identify the authors and countries with the largest production in the journal.

3. Materials and methods

The Web of Science (WOS) database was consulted on 1st March 2021. All records were retrieved using the parameters: "Publication Name" [*Profesional de la Información*]. Records

were found from 2006 to 2020. Thus, the period covers 15 years where 1478 documents were retrieved.

All the information was uploaded to an *ad hoc* Microsoft® Access® 2019 relational database for the treatment and normalisation of the data. Subsequently, a process of standardisation was carried out to check the names of authors and institutions. It was found out that, in many cases, there were misspellings in some names or that some authors used to sign their articles using different names. For example: "Yeste, Elena" or "Yeste-Piquer, Elena", "Perez-Dasilva, Jesus" or "Perez-Dasilva, Jesus-Angel"; in these cases, the address of the author or the institution's website was consulted.

These variations in the names of the authors or institutions have already been pointed out in various studies (Maz-Machado, Muñoz-Ñungo, Gutiérrez-Rubio & León-Mantero, 2020), as it is a relevant element that has to be considered when working with this type of databases.

The following variables were considered in this study:

V1= name of the authors of each article;

V2= name of the university to which each author belongs;

V3= country of each author;

V4= *keyword plus* of each paper (keywords assigned by WOS).

The collaboration in authorship was formed, for each article, by the number of authors, the number of countries signing the article and the number of institutions to which each of the authors belonged. The Degree of Collaboration was determined by applying the formula proposed by Subramayan (1983), which is the rate of the number of collaborative research articles and their relation to the total number of research articles published in the discipline during a given period.

$$DC = \frac{N_m}{N_m + N_s}.$$ Where,

DC = Degree of Collaboration;

N_m = The number of multi-authored research articles published during a given year;

N_s = The number of single-authored research articles published during the same year;

The type of category was determined according to three types: *no collaboration* if the paper was single-authored, *national collaboration* if all the signing authors belonged to the same country and *international collaboration* if at least one of the authors is from a different country than another author.

In the assignment of authorship, a full count was applied (Cronin and Overfelt, 1994), attributing full authorship to each co-author, considering them equally. In the case of country assignment, the same criterion was applied.

4. Results

The scientific production published in the journal *Profesional de la Información* during the time interval selected for the analysis (2006-2020), was comprised by a total of 1478 documents. Of those, 89.7% corresponds to *articles* (Table 1). The total of documents under the categories *letters*, *software reviews* and *database reviews* do not reach 1%.

Table 1. Type of document.

Type of doc.	No.	%
Article	1327	89,78
Editorial Material	92	6,22
Reviews	33	2,23
Book Reviews	18	1,22
Others	8	0,54

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It is observed that the biggest annual rate of change occurred in 2019, reaching 49.22%. As opposed to it, in 2013 this rate reached the maximum negative value (-17.24%). Overall, the annual rate of change over the whole period is 172.85%, as the published papers go to 70 in 2006 to 191 papers in 2020.

The journal entered the third quartile (Q3) of JCR in 2008 and it remained in this quartile until 2014, when it dropped to Q4. It then moved up the quartile again, reaching Q2 in 2017 and 2018. It dropped again to the third quartile in 2020 (Figure 1).

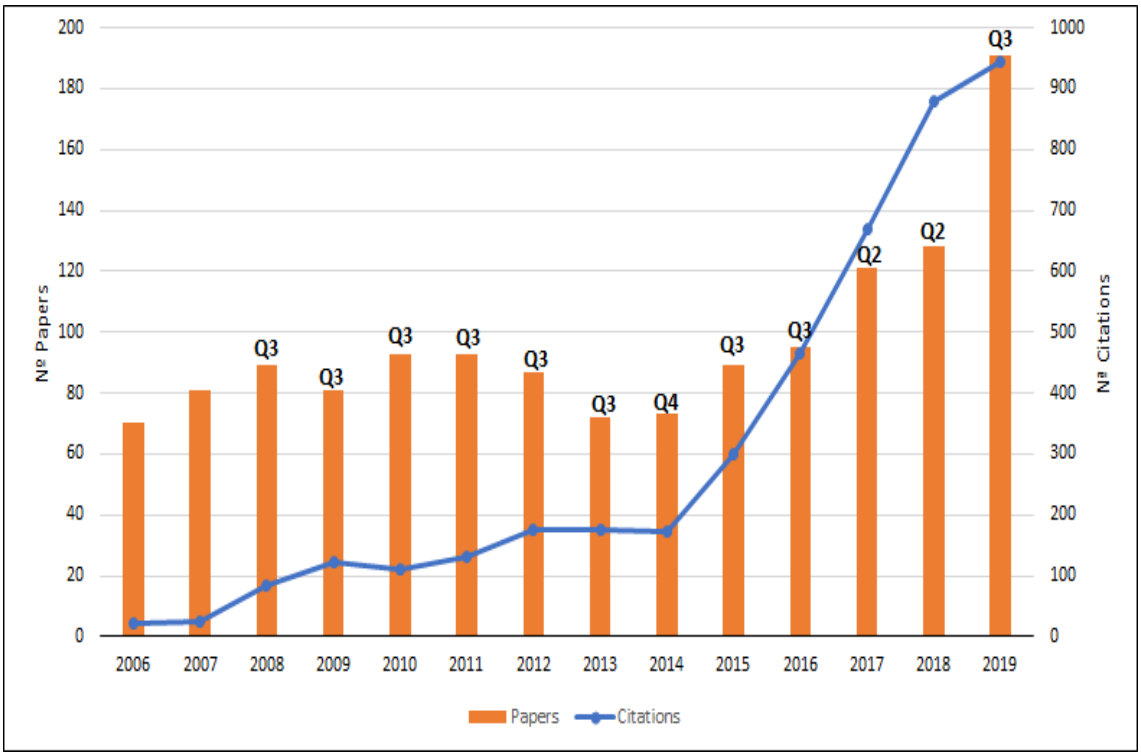

Figure 1. Production and citations per year and quartiles in JCR (Information Science & Library Science).

The publications of this journal have involved 2036 different authors who have generated 3291 authorship signatures. The average number of authors per paper is 2.2. The author with the highest number of papers published in *Profesional de la Información* is Lluis Codina (*Universidad Pompeu Fabra*, Spain) with 36, followed by Daniel Torres-Salinas (*Universidad de Granada*, Spain) with 26 papers.

Table 2. Most prolific authors (n>10).

Author	Total	Affiliation	Country
Codina, Lluis	36	*Universidad Pompeu Fabra*	Spain
Torres-Salinas, Daniel	26	*Universidad de Granada*	Spain
Guallar, Javier	22	*Universidad Ramon Llull*	Spain
Delgado-Lopez-Cozar, Emilio	16	*Universidad de Granada*	Spain
Peset, Fernanda	16	*Universidad Politécnica de Valencia*	Spain
Abadal, Ernest	14	*Universidad de Barcelona*	Spain

Perez-Montoro, Mario	12	*Universidad de Barcelona*	Spain
Rovira, Cristofol	12	*Universidad Pompeu Fabra*	Spain
Aguillo, Isidro F.	11	*CSIC*	Spain
Eito-Brun, Ricardo	11	*Universidad Carlos III de Madrid*	Spain
Orduna-Malea, Enrique	11	*Universidad Politécnica de Valencia*	Spain
Rodriguez-Gairin, Josep-Manuel	11	*Universidad de Barcelona*	Spain

For the analysis of collaboration, the CD for each year was determined, showing that this indicator went from 0 in 2006 to 0.82 in 2020 (Table 3). This increase has been gradual over the time interval analysed, as a DC=0.66 was reached between these years. While the collaboration in authorship has been increasing, the same cannot be said of the international collaboration. In 2007, international collaboration represented 33.3%. In subsequent years it has not been able to reach the same percentage (Figure 2).

Table 3. Degree de collaboration in the journal *Profesional de la información*

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
DC	0,00	0,11	0,52	0,62	0,57	0,64	0,62	0,62	0,75	0,64	0,73	0,76	0,83	0,80	0,82	0,66

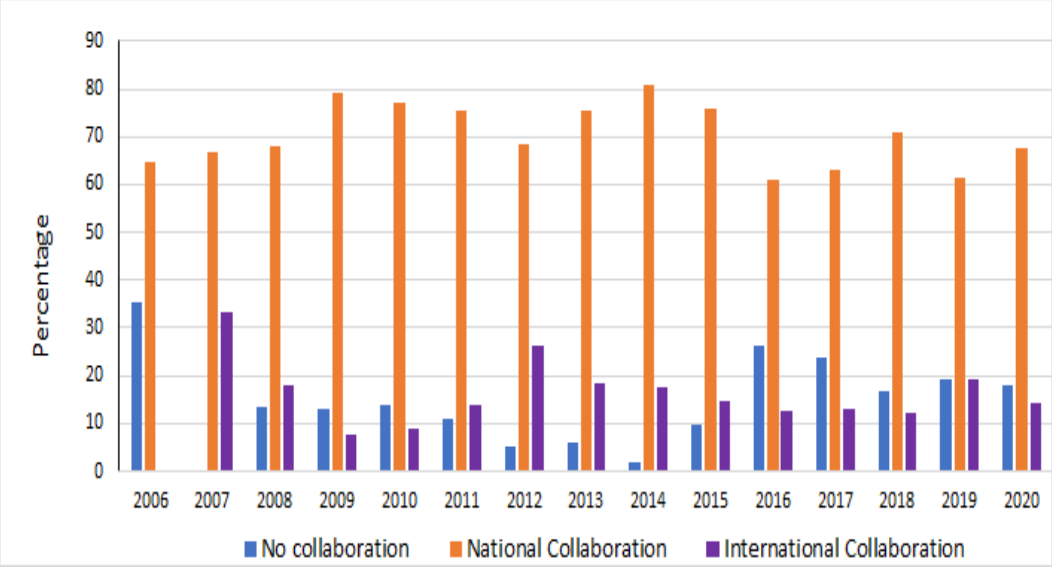

Figure 2. Production according to the type of collaboration.

Authors who have published in EPI belong to 362 different universities. The most productive institution is *Universidad de Granada*, followed by *Universidad Complutense de Madrid* and *Universidad Carlos III* (Table 4). Half of the papers published in this journal belong to the 10 most productive universities (52.98%).

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Tabla 4. Most productive institutions in EPI.

University	No.	%
Universidad de Granada	110	7.44
Universidad Complutense Madrid	106	7.17
Universidad Carlos III Madrid	104	7.04
Universidad Pompeu Fabra	99	6.70
Universidad de Barcelona	89	6.02
Universidad Politécnica Valencia	66	4.47
Universidad Rey Juan Carlos	60	4.06
Universidad de Navarra	52	3.52
Universidad de Salamanca	49	3.32
Universidad de Valencia	48	3.25

The map of the collaboration network between universities shows that it mainly occurs between Spanish universities based on the of Galicia (*Universidad de Santiago de Compostela*, *Universidad de Vigo*, *Universidad de A Coruña*) and Catalonia (*Universidad Politécnica de Cataluña*, *Universidad de Gerona*, *Universidad de Lleida*, *Universitat Oberta de Catalunya*, *Universidad Autónoma de Barcelona*). Likewise, it can be noted that *Universidad de León* has a great deal of intermediation with foreign universities (Figure 3).

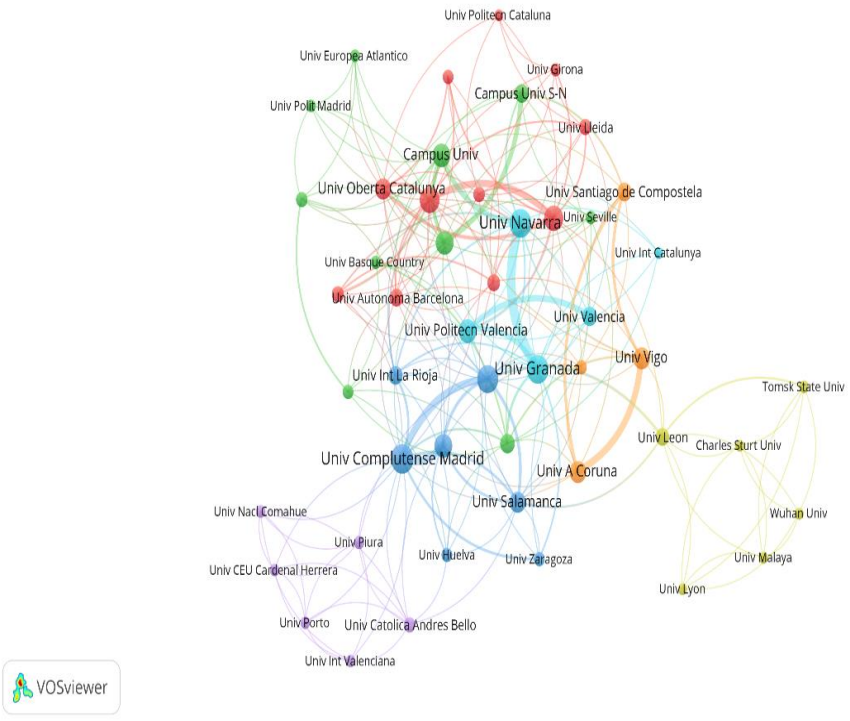

Figure 3. Collaboration network between universities.

Authors from 41 different countries have participated in the papers published in *Profesional de la Información*. Spanish authors signed 83.42% of all the papers, which is an indicator that scientific production in EPI is of a local nature, mainly. England, United States

and Mexico are those next on the list. They do represent the 5.34% of the production of this journal (Table 5).

Table 5. Number of documents per country (n>10).

Country	Documents
Spain	1233
England	28
United States	27
Mexico	24
Colombia	20
Argentina	18
Chile	18
Brazil	13
Portugal	13
Netherlands	12
Germany	11
Italy	10

After the *keyword plus* (keywords assigned by WOS to each article) present in at least ten articles were selected, we used VOSviewer to generate a co-word network (Figure 4). This network is based on 5 clusters:

- Cluster 1 (Social Networks): campaign, coverage, engagement, Facebook, impact, knowledge, online, political communication, social media, strategies, twitter.
- Cluster 2 (Journals): evolution, journals, library, quality, science, web.
- Cluster 3 (Information Management): communication, information, internet, management, model.
- Cluster 4 (Journalism Models and Policies): journalism, media, models, news, politics.
- Cluster 5 (Communication in Spain): networks, Spain, television.

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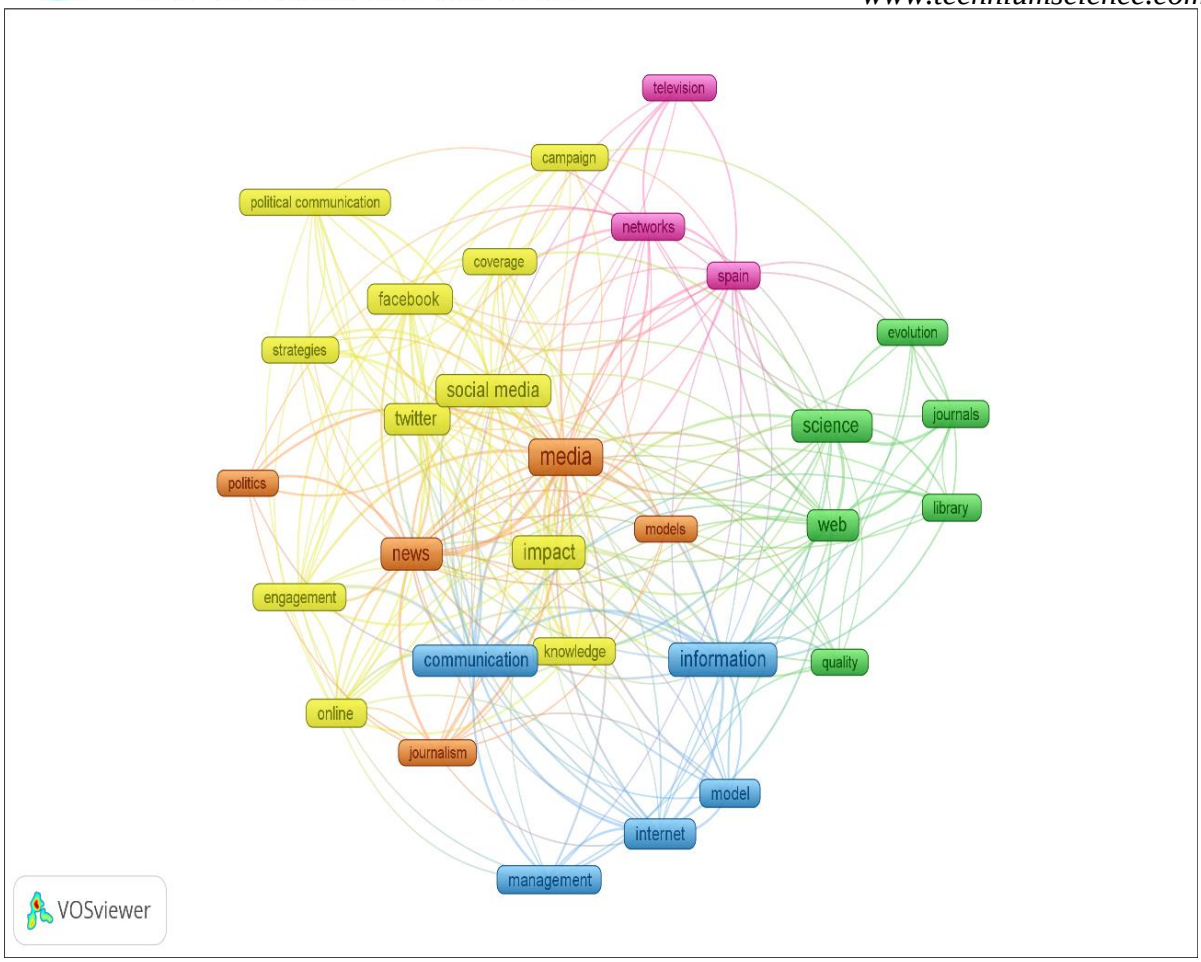

Figure 4. Co-words networks from keyword plus.

5. Conclusions

The analysis has shown that although the journal *Profesional de la Información* was the first Spanish journal to be included in the Information Science & Library Science category of the JCR, its impact has not improved in terms of quartiles over time. Its inclusion in another category, Communication, has not represented an increase in its citations or impact.

There has also been a gradual increase in collaboration between authors, but this increase has been of a national nature and, to a lesser extent, at an international level. Perhaps, the language of publication of the journal could explain the low presence of authors from outside Spain in the articles, but even so it does not explain the low presence of Latin American authors who also have the same language as the country that publishes EPI.

The high rate of papers written by Spanish authors, as reflected in the data, indicates that EPI has been the natural channel for the dissemination of Spanish research in information science. Therefore, the journal has played a prominent role in the development and advancement of this discipline in Spain. There is no doubt that it has been a fundamental support in giving international visibility to Spanish researchers and it has been a model for the rest of Spanish journals of the field that have joined both JCR and SCOPUS afterwards.

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