

## SCIENTIFIC JOURNALS ON EDUCATION IN SPAIN: EVOLUTION AND PROSPECTS FOR THE FUTURE

*[Las revistas científicas de educación en España: evolución y  
perspectivas de futuro]*

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**Ruiz-Corbella, Marta** ([mruiz@edu.uned.es](mailto:mruiz@edu.uned.es))

**Galán, Arturo** ([agalan@edu.uned.es](mailto:agalan@edu.uned.es))

**Diestro, Alfonso** ([adiestro@edu.uned.es](mailto:adiestro@edu.uned.es))

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### Abstract

The Spanish scientific journals on education have experience an exponential growth in recent decades. The reasons are closely related to the supranational policies of university quality assessment, with specific emphasis on research output with "impact". This way, in just twenty years, Spanish journals have become, in detriment of books, in the main channel of communication of the also increasing educational research. In an extremely competitive global context, dominated by Anglo-Saxon culture, the Spanish journals have made a significant improvement in the quality of editorial management processes, in accordance with international quality indicators. However, access to the most recognized indexing, such as *Web of Science* or *Scopus*, and especially competing in impact factor (number of citations), is a mission almost impossible for our journals.

This article focuses, on the one hand, on the evolution of the Spanish educational journals, the analysis of its growth and its international presence. On the other hand, quality indicators and the indexing that categorize journals, both nationally and globally, as well as its problems and limitations, are discussed. It is a descriptive study that analyzes indicators and classifications of various selective data bases consulted through documentary and digital sources.

Finally, it presents a prediction of the short term evolution of impact metrics (*altrimetrics*) and how they should be addressed. It also discusses the importance of establishing government policies on the assessment of research that are transparent and in accordance with the area where there is a need to combine our scientific production in Spanish and international journals.

### Resumen

Las revistas científicas españolas del área de educación han experimentado un crecimiento exponencial en las últimas décadas. Las razones están relacionadas con las políticas supranacionales de evaluación de la calidad universitaria y con su acento expreso en la producción investigadora "de impacto". Así, en tan sólo veinte años, las revistas españolas se han convertido, en detrimento de los libros, en el canal principal de comunicación de la –también creciente– investigación educativa. En un contexto global extraordinariamente competitivo y dominado por la cultura anglosajona, las revistas españolas han realizado una notable mejora de la calidad de los procesos de gestión editorial en función de indicadores internacionales de calidad. Sin embargo, acceder a las indizaciones más reconocidas, como *Web of Science* o *Scopus*, y, especialmente, competir en factor de impacto (número de citas), es una misión casi imposible para nuestras revistas.

Este artículo se centra, por una parte, en la evolución de las revistas españolas de educación, el análisis de su crecimiento y su presencia a nivel internacional. Por otra parte, se examinan los indicadores de calidad y las indizaciones que categorizan a las revistas, tanto a nivel nacional como a nivel mundial, así como sus problemas y limitaciones. Se trata de un estudio descriptivo que analiza los indicadores y las clasificaciones de diversas bases de datos selectivas consultadas a través de fuentes documentales y digitales.

Finalmente, se hace una previsión de la evolución a corto plazo de las métricas de impacto (*altrimetrics*) y cómo deben afrontarse. Se discute, además, la importancia de establecer unas políticas gubernamentales de evaluación de la investigación transparentes y acordes con un campo en el que es necesario combinar la producción científica en revistas españolas e internacionales

### Keywords

Education, periodicals, scientific journals, bibliometric, faculty publishing, social science research, electronic publishing, evaluation, higher education

### Descriptores

Educación, revistas científicas, bibliometría, investigación en ciencias sociales, publicación en línea, evaluación, educación superior

A retrospective look at Spanish scientific journals in the field of education over the last twenty years astonishes when examining the spectacular advances made in their quality and quantity. In less than ten years we have passed from the primacy of the printed format and moved to the online edition, putting into doubt the continuation of a printed medium. Additionally, editors and researchers have had to increase their efforts in publishing quality originals, as well as increasing the diffusion and visibility of works, so as to obtain an impact, measured quantitatively and externally at the highest level. Thereby, the workflow for those responsible for scientific journals is not only limited to managing and editing new articles received, but also to adding new constituents (additional information from the author with mini videos, creating debate with the authors through a journal blog, use of tools like Google Scholar for the record of citations, etc), so as to promote popularity and impact.

Referring to the subject, the European Union recently presented a framework document in order to facilitate discussion and strategy in science (EU, 2014). The paper especially distinguishes scientific journals as channels for the diffusion of science. The report begins with the imminence of the change that we are now seeing in the modus operandi of research, the organization of science and its distribution through social media. Influenced by the unrelenting evolution of digital technology and the appearance of virtual networks of researchers - established from the evolution of the social networks used, enabling open global communication and interaction without borders. It is anticipated that the consolidation of open access science through the means of digitalized publications will create an annual increase of 20% in their use until the year 2020. Nevertheless, other types of publication will hover around 3.5% (Abadal, 2012). However,

we cannot ignore the underlying business undertaken by other types of publication (paid access), that are colliding head-on with the proposals of the open access movement, as presented by the Declarations of Budapest (2002), Bethesda (2003) and Berlin (2003). Proof of this is found in the 219 educational journals included in the Social Science Citations Index (SSCI) under the Education & Educational Research category. Nearly 160 (72%) of these journals are managed by major publishing groups such as Taylor & Francis, Springer, Wiley, and Sage.

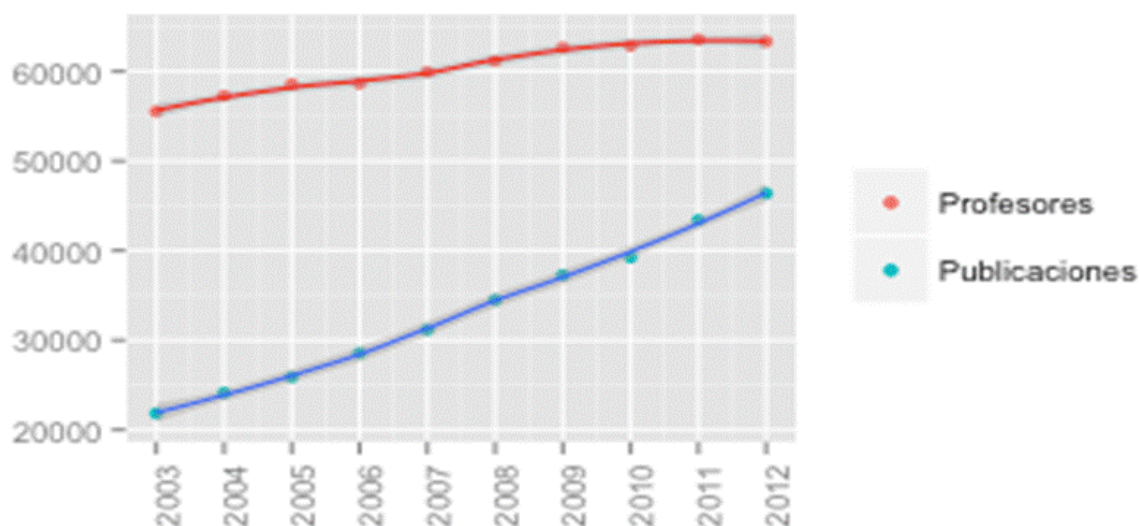
On the other hand, it is unquestionable that in Spain a substantial part of the Social Sciences academic community has revolutionized its form of working and publishing, overcoming an isolation caused by language, culture and geography. The effects of globalization and access to the internet has been experienced throughout the research process, from the drafting of a project, up to publication and the diffusion of results. It is precisely in the last phase of the process where the scientific journal fulfills an indisputable function: the presentation and promotion of a product of investigation – validated by peers – for its diffusion between the scientific communities. Ideally, all academic work should have a maximum impact in its field, beginning with the premise, like Post (2014), that academic research procedures and publishing procedures are intimately-linked processes, and those investigations that fail to be published are not assessed or recognized.

It is precisely in the areas of impact and recognition that the scientific journal publishing teams have to consider what they will contribute and what place they will occupy in an increasingly competitive national and international environment. In this context, their job focuses on identifying what they should do in order to have a journal that is recognized as

an attractive medium for the researcher, or, in other words, an increase of his impact. Spanish journals, as we know them now, will not survive if they do not successfully reform, allowing them to adapt to the new publishing context (Aguillo, 2014) and the necessities of the scientific production (the publishing flow, the digitalized edition, the dissemination through Social Media, and the new metrics that evaluate the impact of journals and the authors within the business model, etc.)

In order to better understand this process of change and the challenges faced, we should begin with the origin of Spanish scientific educational journals and their historical evolution which was fraught with limitations and problems. Although a relatively small scientific area with certain local fields, published mainly in Spanish, their evolution represents a spectacular development in education research in our country (figure 1).

Figure 1. Evolution of the research output and number of professors in Spanish Universities (2003-2012)



Source: Observatorio IUNE, 2014 – <http://www.iune.es>

The objectives of this work focus on describing the evolution of Spanish scientific journals, analyse their fundamental problems, identify the preferred quality indicators that achieve the desired impact and anticipate what the challenges will be in near future. This article seeks to contribute, through a revision and the experience of three journal editors, from three different impact levels, to establish what the key issues and trends in scientific research are, allowing progress to be made in the management of quality publications that are competitive nationally and internationally.

Finally, it is necessary to be aware of the limitations that are created by the new

obligatory changes, especially in relation to the acritical transfer of quality or impact criteria. Also, we must look at the impact from the experimental sciences to the social sciences, as well as other problems relating to bad practices and the biases of different evaluation systems.

### **The Scientific Journals: origin, function and objectives**

The necessity to communicate a scientific discovery, a mode of understanding reality or a new advancement in technology has been a constant throughout history. We do not intend to carry out an entire research on the history of scientific publishing but we must highlight that for centuries, the first scientific journals that we

are aware of and use as references, such as the *Journal des Savants* (Académie Royale des Sciences, 1665) and the *Philosophical Transactions* (Royal Society of London, 1665), confirm that even in the past, articles, book reviews, news, and scientific information of interest were collected for certain research communities (Fuentes, Luque, and López-Gómez, 2012). This format facilitated the dissemination of scientific advancement in academic circles, remaining in circulation for long periods with very few changes. During this period, their dissemination was limited to subscribers, appointed libraries and academic institutions. Without doubt the innovative force of the 17th century was the emergence of the scientific societies, bringing together at a historic moment, researchers of specific scientific fields who opened the door for scientific knowledge to be valued permanently. However, despite their novelty, scientific journals were in a secondary position until the mid 19th century (Jiménez-Contreras, 1992). In this context, the publication of articles was a practice limited to a few prestigious authors and to those closely linked to the traditions of that specific scientific field, undertaken without assumptions of remuneration, recognition or promotion. It was precisely at the end of the 19th century when the increase in journals reached an unstoppable point. Thus facilitating the publishing of:

(...) a long list of published titles. At first by scientific societies, then by universities and government agencies, and finally by private publishers such as Elsevier, Kluwer, Academic Press etc. These private publishers have been the core of the system of scientific/technical publishing since the late 19th century (Abadal and Rius, 2006: 7).

The journals have suffered many difficulties with regard to the traditions of each subject area. Among them stand out, the lack of economic support, too much personalization from each editor (which could lead to the disappearance of the journal should they

withdraw), the lack of quality assessment, the excessive localization of the works included, etc. (Rodríguez-Yoke and Giménez-Toledo, 2013). However, this model of communication, dissemination, and conservation of science was valid and fully responsive to existing demands and needs. Hence, from the very first moment, they became a channel of scientific expression and information acquisition.

However, "what is a scientific journal?". It could be defined as a periodical publication that publishes scientific articles (occasionally including information on current research and development news in a specialized field), with the objective of reporting the results from research undertaken by individuals or teams that are dedicated to science. The journals publish results from research originals (previously unpublished) which imply a contribution to knowledge (CSIC, s/f). Therefore, scientific journals act as a fundamental instrument in the organization, structuring and social institutionalization of the discipline (Delgado, Ruiz-Pérez y Jiménez-Contreras, 2006).

However, it is not clear what is meant by a 'scientific article', especially in the fields of Social Sciences, Law, and the Humanities. In order to be included in a journal, all contributions should fulfill various criteria, some already mentioned: originality of the contribution – the product of research –, methodological correction, the presence of a bibliography that supports the scientific discussion (López Yepes, 2006), for it to be new for the scientific community, and that the work passes an evaluation by other colleagues (peer review) before publication (Carpintero, 2009). At this point we should note that in education, as a relatively new field of multidisciplinary research, there still exists some debate about when a contribution can be considered the result of a scientific investigation *stricto sensu*. One of the questions lies in the multiplicity of methods used, which on occasion are not even explicitly describe in the articles, thus putting into question desirable characteristics such as replication.



Notwithstanding, there remains the discussion about whether these “desirable characteristics” similar to philosophy and theory inherent to experimental sciences are directly comparable to the broad field of Education Sciences, where these characteristics are more difficult to apply (Tourriñan y Sáez, 2012; Burbules, 2014; Aliaga, 2014).

### **Evolution of the Spanish Scientific Journal in the field of Education**

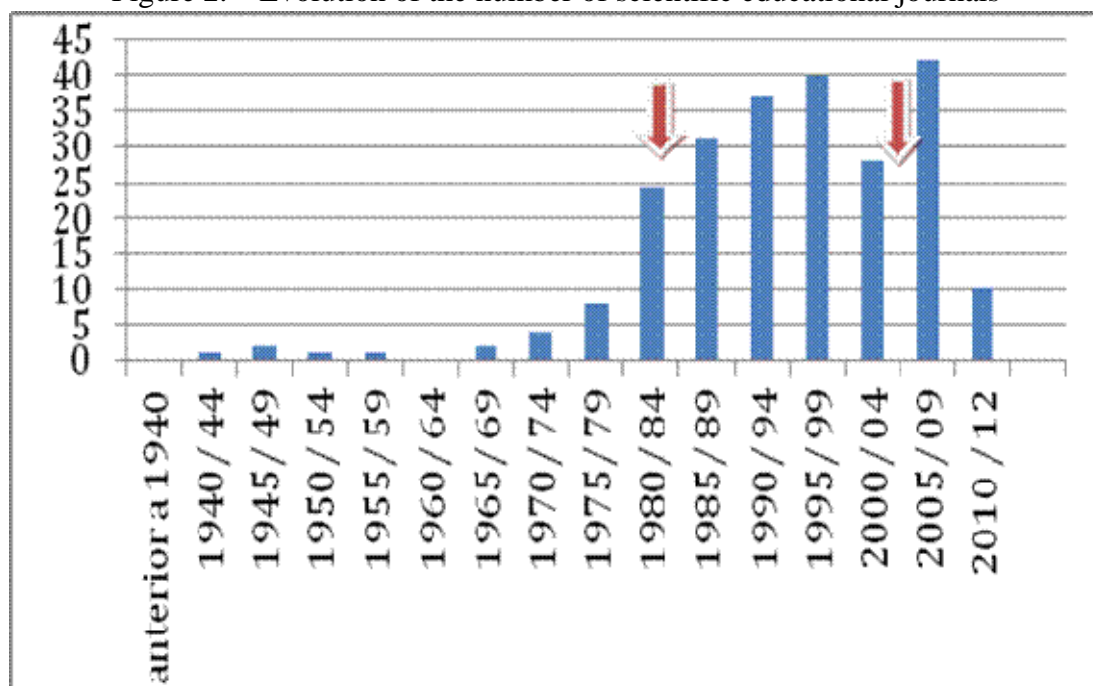
If we focus our attention on the journals in the area of education, we can ascertain that the interest for these publications and their valuation as an element of professional recognition arrived with notable delay. As is the case with other fields in Social Sciences and Humanities, the value of the scientific article is recognized, but the published format was not usual or widely utilised within the university community. In addition, the custom of Social Science and Humanities researchers was to publish books rather than articles. Hence, there were only a few scientific educational journals. Similarly, Computer Sciences resort primarily to conference proceedings whereas Experimental Sciences have traditionally used journals (Dorta-González y Dorta-González, 2013).

In fact, the first Spanish educational research journals did not appear until the 1940's, although there were some noteworthy examples, such as the *Boletín de la Institución de Libre de Enseñanza*, which began in 1877. We have to wait until the 1980's for there to be a reasonable increase in the research journals focusing on education. However, three precursors stand out, the *Revista Nacional de Educación* (1941), which later adopted the name *Revista de Educación* (1952) quickly becoming a place of convergence for education

specialists. Since its origin, it has been published by the Ministry of Education and is currently a recognized journal throughout the scientific and academic community, both nationally and internationally. The second, *Revista Española Pedagogía* (1943) which was sponsored by the educational *Instituto San José de Calasanz Pedagogía del Consejo Superior de Investigaciones Científicas* (CSIC), and currently published by the Universidad Internacional de la Rioja (UNIR). Both are amongst the few Spanish journals that have gained entry to the prestigious Social Science Citation Index (SSCI) of the Journal Citation Reports (JCR) published by Thomson Reuters. This milestone was reached in 2010 (Fuentes et al., 2012). The third “historical” journal is the *Bordón, Revista de Pedagogía* (1949), which was driven by the recently created *Sociedad Española de Pedagogía*, also linked to the CSIC, where it is managed and maintains its social headquarters. These three journals are now well established and have a strong presence in the national and international communities. They can be considered clear examples of scientific journals and the evolution of educational research in Spain.

As mentioned, throughout the past century the presence of scientific publications in education was minor. The big breakthrough occurred in the 1980's. In figure 2, two important milestones are identified with regards to this evolution. The first occurred in 1983, the year that the Ley de Reforma Universitaria (LRU), (University Reform Act) was approved and It developed through the first calls for evaluation of research activity by faculty (those undertaking a period of six-year research called “sexenio”) in 1989. The second milestone, after 2004, occurred following the expansion of digital publishing.

Figure 2. – Evolution of the number of scientific educational journals



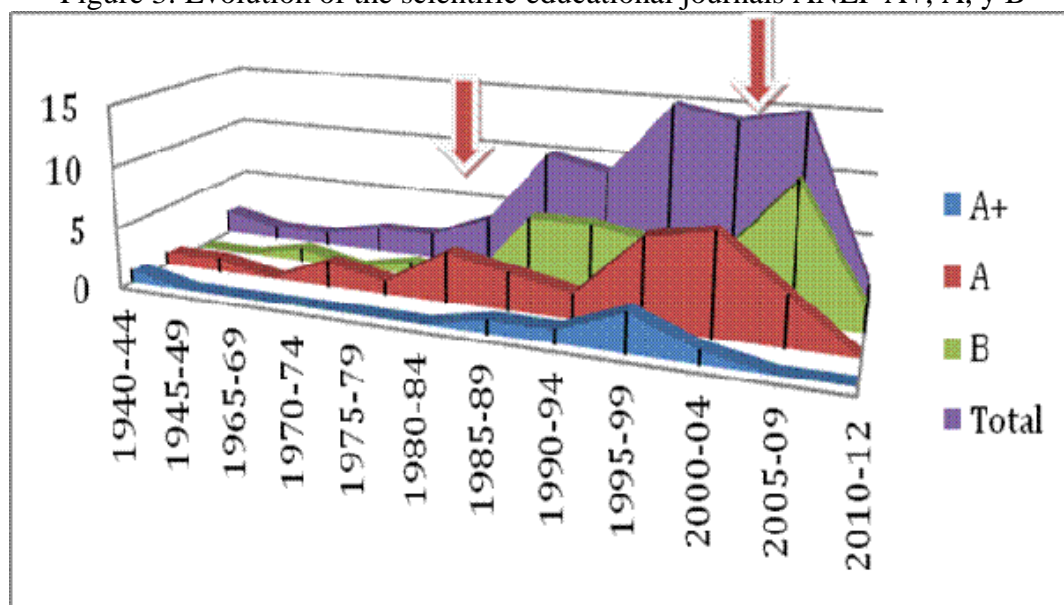
Source: Compiled from DICE, 2014

It is important to note that the list prepared by the Center for Humanities and Social Sciences of the CSIC, Diffusion and Publishing Quality for the Spanish Journals of Humanities and Social Science and Law (DICE), includes 232 journals in the field of education and specific didactic teaching specialities. The list also includes dissemination professional journals like *Cuadernos de Pedagogía*, as well as approximately another thirty titles that are no longer current (although, in some cases, they restructured into new journals or publish in a new format). An additional problem to assess this reality is the disparity in the inclusion and ranking of journals in different databases and specialized catalogs. Therefore, in order to select the journals with higher academic and scientific rigor and distinguish them from popular scientific dissemination articles or from those journals that have failed to reach a minimum level of quality, we rely on the

ranking system most used in the public processes of evaluation by university faculties in Spain, especially DICE, which includes references to other indexes or rankings.

In this manner restricting ourselves to the journals likely to be categorized as scientific journals by the *Agencia Nacional de Evaluación y Prospectiva* (ANEP), (National Agency for Evaluation) the original list of 232 journals is reduced to 137. Of those, only 77 reached the highest ANEP rating (7 A+, 33 A, and 37 at B). As a comparison if we only consider new journals of a higher quality, the previous list is reduced to less than half, which allows us to identify the group that has managed to consolidate (figure 3) and adapt to the demands of the external agencies of evaluation.

Figure 3: Evolution of the scientific educational journals ANEP A+, A, y B



Source: Data compiled from DICE, 2014

If we utilize the complete criteria of publishing quality from LATINDEX in order to select the journals, only 123 journals have between 31 and 33 of the criteria (55 journals have 33). According to this catalog, 71% of the Spanish registered journals in this directory pertain to education, whilst, for example Brazil which has a excellent record of publication, only 58% are derived from education. Despite our elevated number of publications, we are within a sector that has great weaknesses, among which are that

(...) the majority of journals only produce one or two issues per year. In many cases, the preparation of each issue is a voluntary exercise conducted by a small group or one person. In addition legacies from the past has encouraged the “institutional” journal, run by university departments that often cannot increase resources for their development. Indeed, initiatives may be linked to the exterior image of cultural institutions, organizations, or associations, whom can hardly be considered true representatives of the discipline (Rodríguez-Yunta y Giménez-Toledo, 2013: 37).

Even more surprising is the unrelenting pace of new journal creation (Figure 2), despite the enormous difficulties of management and maintenance. A new publication is also confronted with the problem of attracting authors in a tremendously competitive system in which professors attempt to publish in the journals of the highest impact, consequently increasing their own prestige, academic projection, and visibility. In this sense, an author who wants to publish a good work will not diminish its value by publishing in a journal without impact.

We must also be aware that the numerical register of titles offers the false impression that things are improving as more journals are listed, suggesting a ranking solely for appearing in publishing. The quantity of journal titles should not be in itself positive for the publishing institution or department unless it is accompanied by the corresponding quality (Rodríguez Yunta y Giménez-Toledo, 2013: 40).

What are the causes of the notable increase in the creation of journals since the 1980s? In our judgement they could be identified by the following:

- Initially due to Spanish and European government policies dealing with the low position of universities in world rankings (Galán, 2014). Given the large weighting that research output has as an indicator of quality, there was a strong incentive for research and publishing, motivated by both universities and the Government, for articles with impact factor in the place of books. The approval of the *Ley de Reforma Universitaria*, (LRU,1983), (University reform law 1983) had a special significance in the evaluation of the teaching-research career with regards to the promotion and selection of faculty. But the key point would be the Real Decreto 1086/1989 (Royal Decree) announced the 28th of August, regarding the remuneration system of lecturers. The Decree introduces the necessary mechanisms to encourage scientific productivity through research evaluation. The evaluation of research productivity (sexenios) began voluntary but gradually became, as a result of the *Ley Orgánica de Universidades* (LOU, 2001), (Organic law on Universities), a key system for the professional development of faculty in all areas of work: teaching load, initiation of competitive research projects, economic incentives, promotions, access to certain management positions, etc. The evaluation system of six-year research, was conducted by the *Comisión Nacional de Evaluación de la Actividad Investigadora* (CNEAI) – transferred to the *Agencia Nacional de Evaluación y Calidad* (ANECA) in 2014. It prioritized the scientific articles as products or evidence of a quality research activity, which led to the majority of researchers to choose this route as the principle means of scientific communication. This policy led to the establishment of specific evaluation criteria, each specific to its field. These are published annually in the call for six-year research. This determines the quality indicators of the journals. However, in the field of education, there have been significant problems of objectivity and transparency (García, Rodríguez y González, 2005; Galán y Zych, 2011; SEP, 2013). Also passed in the same decade was the *Ley de la Ciencia 1986* (Law on Science), which aimed to raise the international impact of Spanish research and demanded the proposed evaluation of new proposals for quality criteria (López-Yepes y Ros, 2003). The new legislation was the starting point for a radical change in research and publishing in the fields of Social Sciences and the Humanities.
- A second cause can be attributed to the autonomy of universities and the significant increase in the number of Science Departments of Education and Schools of Education (*Facultades de Ciencias de la Educación* and *Escuelas Universitarias de Magisterio*). Many proposed the creation and publishing of a journal as a sign of the center's identity and vitality, with the objective of facilitating the publication of innovation and research conducted by its faculty. It is noteworthy that 38.1% of the Humanities and Social Sciences publications were published by public universities and 4.1% were promoted by private centers (Rodríguez-Yunta y Giménez-Toledo, 2013). If we add the percentage of journals supported by the Administration, the statistic ratio rises to 62.6%, which should lead us to reflect upon the suitability of the business model that supports these journals and specifically reflect on their sustainability during an economic crisis.
- Thirdly, the organization of the Spanish university departments and fields of knowledge are sometimes fragmented and or highly specialized, which encouraged the emergence of scientific associations and societies.



Consequently, each of the groups launched its own journal as a means of communication and dissemination of the scientific work done by its members, with space especially reserved for partners. Having individual journals gave visibility to the scientific communities and dependent on the quality of the journal, a high recognition in the academic community. A clear

example of this situation is the increase of publications in the fields of the Social Sciences and the Humanities by 20.8% (Rodríguez-Yunta y Giménez-Toledo, 2013). If we focus this analysis on the field of education, restricting ourselves to the 55 journals that have the 33 LATINDEX criteria, the quoted statistic increases by 11 points:

Tabla 1. Editorial ownership of journals according to 33 LATINDEX quality standards

University, faculty, and/or department	Associations, federations, societies, and/or research groups	Publishing house, and/or Public administration	Independent editors	Mixed models (*)
28	17	3	1	6
50.9%	30.9%	5.45%	1.8%	10.9%
Total journals: 55				

Source: Produced by authors with data retrieved from RESH, 2014

*\*: Those that appear in the category mixed model refer to publications that don't present a clear differentiation in editorial ownership. For example, scientific societies and universities. On the other side, we emphasize that a large part of the column relative to associations, federations, societies, and/or research groups are intimately connected to the university, making the universities responsible for the majority of scientific publications, exceeding 80% of the titles.*

The data retrieved in table 1 confirms the origin and tendency of the most relevant education scientific journals edited under the scope of the university, which render professionalization, autonomy, and sustainability difficult.

- The last clearly determinant cause, relates to the evaluation of the research productivity of the university faculty. In addition to the previously mentioned six-year period (sexencios), the passing of the Ley Orgánica de Universidades LOU, 2001 (Organic Law on Universities) resulted in the creation of ANECA and autonomous agencies for university quality, which had authority to evaluate lecturers for employment at public universities and to grant individual unconsolidated annual bonuses for merit. Each quality agency used their own evaluation criteria, but they all relied upon, amongst other criteria, the value of publications in

scientific journals (Galán, González-Galán y Rodríguez-Patrón, 2014). Later, the Amendment of the Organic Law on Universities (LOMLOU, 2007) introduced a system of accreditation in order to access the different educational bodies of university faculty, that had Social Sciences journals included in the JCR of Thomson Reuters, Scimago Journal Report (SJR) of SCOPUS and DICE, used as basic indicators to evaluate research productivity.

Ultimately, the legislative changes introduced from the 1980's made clear that the necessary evaluation and recognition of university professors would be derived primarily from their publications, especially those in the form of journal articles of contrasting quality, or otherwise, journals with impact. The concept of impact, traditional for the disciplines of pure science and bio medicine, was something novel for professors of the educational sciences, who up until the

90's followed very different traditions in the diffusion of their scientific production. Although they were often called journals of "recognized prestige" – a vague expression that distorts objectification of quality – it wasn't usual to understand impact as a quantitative metric derived from the number of citations received in specified journals that were considered source publications. However, it is now undeniable that this evaluative policy has motivated Spanish journals to conform with the international diffusion trends of scientific productivity in order to improve their impact. As an example, the progressive substitution of Spanish for English as the language of scientific communication in our area (Moreno-Pulido, López-González, Rubio-Garay, Saúl y Sánchez-Elvira, 2013).

The causes identified for the exponential increase of journals, have simultaneously generated an enormous pressure in two ways: firstly, researchers have felt it obligatory to publish in this medium (and not in any journal, but in those that fulfill determined quality criteria to comply with what would be considered journals of impact, especially those included in the JCR), while other classic channels of diffusion like books have lost their value as a publication of impact. Secondly, through the journal editorial teams who struggle to reach and maintain standards of complicated quality criteria that are set for Spanish journals, acknowledging the high level of competition that exists, especially the prevalence of diverse asymmetric quality criteria in between those that emphasize the use of English as the scientific language (Ammon, 2010; Gregorutti, 2014) and the research support in quantitative methodology (Post et al., 2013; Smeyers y Burbules, 2011).

Clear evidence of this situation can be observed in the specified criteria that are in the document, Principles and Guidelines for applying evaluation criteria (Principios y orientaciones para la aplicación de los criterios de evaluación) used for the accreditation of the various university bodies of professors (ANECA, 2008), highlighted within the section

concerning research activity, publications are prioritized by recognized journal prestige. In the guidelines mentioned, they indicate the number of JCR articles necessary to be to be accredited (from one for the teaching position of Doctorate assistant up to 16 for University professor). Despite this, there remains in circulation a second general range of journals of "recognized prestige" not included in the JCR. Some authors express concern about the policies of incentive and promotion which are dependent on the number of articles published and that occupy determined positions within the JCR, and on the number of citations obtained. These policies may cause a real perversion of the system, one that already causes researchers to focus on strategies of "curricular engineering" to the detriment of other criteria of quality and scientific ethics (Post et al., 2013). They also warn about the increase of bad practices used in this process, which has encouraged publishers to promote adherence to existing ethical codes, such as those of the Committee on Publication Ethics (COPE), that stresses the raising of awareness, ensuring the prevention of scientific fraud and guidance regarding procedure in cases of malpractice (Tur-Viñes, Fonseca-Mora y Gutierrez-San-Miguel, 2012: 492).

### **Criteria for Editorial Quality: Establishing the Concept of Impact in Spanish Journals for Educational Sciences.**

If in the 80's the pressure to publish articles started, "publish or perish," then the 90's is when the scientific community realised that they should not be indifferent to which journal to publish in. An analysis of the calls for certain sections of research updated by Galan and Zych (2011) is in this sense a true reflection of the evolution that was produced, from the complete undetermined quality criteria of the first calls, to subsequent progressive definition, despite still being somewhat vague, supposes a clear influence in the preferred type of production required. In the two-thousands, the creation of the quality agencies and the system of faculty accreditation created an outcry for scientific journals to be classified from specific quality

criteria. At that time the culture of ranking began

From this new framework, the planning of educational journals changed radically. On one side, demand was favored as a fundamental criteria with peer review of the original. On the other, impetus was given to the necessity of fulfilling other minimum criteria of quality, those previously referred to. Funding or starting a journal was, and continues to be, relatively simple particularly if the support of a research group or that of an institution is available. However, to incorporate, advance, and maintain the scientific and editorial quality criteria of these publications is a very different question. This process generated the progressive definition of the quality criteria, from which the journals convert into a medium of evaluation that then determines the professional and social standing of scientists. This leads definitively to influence in the allocation of economic resources for research (Delgado et al., 2006: 10).

However, which quality indexes and criteria are we referring to? In the evaluation of international scientific productions, there exists a key principle: the higher the impact of a scientific journal, the higher its prestige and distribution. Hence, more originals are received of a higher quality, and the fact that they are being published assumes them having surmounted a selective and demanding filtering process (Díaz et al., 2001: 309). In this manner, one article can affect, by a significant amount, the impact factor of the journal and consequently all the articles within. This maxim is debateable (Burbules, 2014). However, if we analyze, for example, the seven educational journals catalogued by ANEP as an A+, the percentage of uncited published articles, agrees with the data from SCIMAGO in the triennium 2010-2012, situated between 50.8% and 79.5%, a very high percentage. As we shall see later, the aim to verify the impact of journals, articles and researchers more accurately has seen a proposal initiated for the use of other criteria that measure the direct impact of each article, and to consider more sources of citation than

that of just WoS and Scopus. Nevertheless, we must recognized that assigning the impact factor of a journal to the article, at face value is a very practical criteria when evaluating an individual professors production; however, for other commissioners to read the articles again and re-value quality, would be unfeasible in terms of the time required and the impossibility of raising the degree of specialization of journal "referees".

In this context, when the evaluation of research productivity began in Spain, the only recognized database that published the impact factors of scientific journals was JCR from the Web of Science (WoS), known previously as ISI, a subsidiary of the North American group Thomson Reuters. However, in the field of Spanish education research, JCR was unknown to the majority of faculty and the number of authors that published in those journals was insignificant. In fact, up until the end of the two-thousands not a single Spanish education journal had entered the database.

As a consequence, the first six-year evaluation of faculty were based on tradition and, or the discretionary criteria of the evaluating commission. They were considered a valid production in the area of education (normally a local work in the form of an article and book), without any external assessment. The lack of criteria disclosure and the objectivity of those evaluations obligated the need to rate them with more precision, especially when looking at the valuation of articles published in the Spanish and Latin American journals of Social Sciences. Hence, there was a push for an objective classification of these journals in accordance with international standards of quality that originated from the different initiatives described below:

The first large guide on quality criteria was a document created by LATINDEX (Regional Cooperative Online Information System for Scholarly Journals from Latin America, the Caribbean, and the Iberian Peninsula, started in 1995). Its objective was to construct a directory which assesses scientific journals using 33

indicators (36 for digital journals) that garnered formal aspects such as the process of editorial management. The results of this initiative didn't appear online until March 2002, but it has had an enormous impact, being the only objective model on quality criteria. Currently, there are more than 23,000 journals in its directory (1,575 from Education), of which almost 8,000 are in the selective catalogue (336 from Education). It quickly converted into the key adequacy check for journals looking to meet the formal criteria demanded by the international community and as a guarantee of progress on the first step as a publication of quality. The results published by LATINDEX was the first editorial health check on Spanish journals. It enabled their comparison with other journals, providing a real wake-up call to incorporate unfulfilled criteria. Thus, it guaranteed a formal quality in terms of presentation, format, systematic data protection and regularisation of publication dates.

We understand that the production and development of the LATINDEX criteria presented the first big milestone for the editorial quality of Spanish journals on education, not only for the reach of the project and the international collaboration fostered, but for the intent to promote reforms in the policies and diffusion of well-directed editorial practices to integrate the editorial management, diffusion, organisation and use of scientific knowledge. That being said, "they didn't conceive it as a system of evaluation for journals, but as a specialized instrument to know the situation of the journals and drive the same editorial quality in all knowledge disciplines" (Román, Vázquez y Urdín, 2002: 288). Nowadays, those criteria seem obvious – and so, for example, they have disappeared from the 6-year evaluations model (sexenios)--, but we should not lose sight, that in those years prior to the LATINDEX, the editorial teams had to learn and adopt them with little external assistance and even less, from the professionals of this sector.

Furthermore, in 2004 the IN-RECS rankings began. These were the principle product from a

research project undertaken by Grupo EC3, for many years the only impact metrics used on Spanish journals, emulating the calculating methods used in the JCR. The period covered for their classifications, comprised of 1996 (which included 96 journals), up to 2011 (162 journals), years which were essential references for the editors of Spanish journals and also for many researchers. However, even though the CNEAI mentions IN-RECS rankings in some calls, it never became known if they were a real reference for the evaluating committees. The evaluation of journals by IN-RECS and the ranking given were supported by indirect indicators, that is to say, a function of the number of references received in certain predetermined source journals, relative to the number of articles published in a certain period (impact factor, IF). The list of source journals were made up by a select group of Spanish publications, (initially 22 and in 2011, 32), who's tradition, both academic and scientific guaranteed quality content whilst providing reasonable contrast. Unfortunately, IN-RECS stopped updating in 2012 due to lack of funding.

Two years later, in 2006, the Spanish Foundation of Science and Technology (FECYT) presented a paper addressing the evaluation of the integral quality of journals, in which they identified 53 indicators. They not only included formal aspects, but others, like informational quality, editorial management, appeal and scientific dissemination (Delgado et al., 2006). From this initiative Project ARCE was developed, leading to the recognition of the best Spanish scientific publications. For these, a process of evaluation of the formal indicators was undertaken, the professionalism of the editor and his editorial team, the editorial workflow, visibility and internationalism of the papers. A positive evaluation entailed granting a Quality Seal for excellent journals, which required renewal every three years. At the first call in 2007, only five education journals received the seal. The fourth and last convocation in 2014 awarded the seal to 11 publications in the area of education, adding to



the 13 already recognised. Eight others renewed their concession. Without doubt, the purpose of these initiatives of evaluation and quality (table

2) was to achieve competitive and professional publications.

Table 2. Journal quality indicators according to LATINDEX and FECYT

LATINDEX		FECYT	
Criteria	Criterios	Indicadores	Criterios
Basic Characteristics	8	Information quality as a function of scientific communication	13
Formal characteristics	9	Journal management quality	25
Features management and policy	8	Capacity to stimulate interest and scientific quality	7
Characteristics of the content	8	Distribution, readers and visibility	4
		Quality of repercussion	4
<b>TOTAL</b>	<b>33</b>		<b>53</b>

Source: LATINDEX y FECYT

Since the emergence of the LATINDEX and IN-RECS, a series of editorial reforms were promoted nurturing Spanish journals, those already in existence and those about to appear. These were a series of best practices disseminated by the Centre of Information and Scientific Documentation (CINDOC) of the CSIC. Examples worth mentioning are the Guide to good practice in the editing of scientific journals (Roman, 2001), or Group EC3's Edition of Scientific Journals: Guidelines, Criteria and Models of Evaluation (Delgado et al., 2006).

The fourth reference, and perhaps the most important, for its repercussions, also appears in 2006. The project, Dissemination and Editorial Quality of Spanish Journals in Humanities, Social Sciences and Law (DICE), a tool created by the EPUC group (Evaluation of Scientific Publications), part of the Institute of Study Documents on Science and Technology (IEDCYT), the Institution that replaced CINDOC, a result of the collaboration between CSIC and ANECA. The largest contribution from this study was that a Government organization which was dedicated to the evaluation and accreditation of the lecturers declared using the tool to evaluate the research output in Social Sciences and Humanities.

DICE organized all the publications collected according to a series of criteria. In the first version, the five indicators used were: inclusion in the database; external evaluators; fulfillment of regular publication; acceptance of external editorial advice and drafting; accessibility for external contributors. An improved version was introduced in 2010, including new measures for the internationality of authors and the number of criteria complied with in the selected classifications LATINDEX, ANEP, ERIH and CARHUS+. In DICE's last update in 2010, 212 categorized journals in Educational Sciences can be found.

A year later RESH emerged (The Integrated system of quality indicators for Social Sciences and Humanities journals), and it proposed to converge and integrate the projects developed by the groups EPUC-CSIC and EC3 from Granada. Their objective was to offer a profile, as complete as possible of the scientific journals in Social Sciences and Humanities published in our country. This would be obtained from qualitative and quantitative indicators (RESH, 2012). RESH aimed to provide an integrated profile of the indicators in relation to the editorial process, audit by two reviewers, international visibility and impact indices. The object was to construct journal

ranking lists in each discipline (Alcain, Roman and Gimenez 2008). In RESH's last update in 2010, 202 Spanish journals were categorized under the title Science of Education. Under this project new indicators of editorial quality were integrated which tried to reflect those criteria, not always explicit, of the principle instrument of evaluation used by the faculties: 19 CNEAI and 22 from ANECA. Despite this effort, the organizations never made public the use of the tool, which as a result minimized its value as a referral classification index, contrary to what occurred with DICE.

In 2010 a sixth rating body began, CIRC (Integrated rating of scientific journals), promoted by EPUC and currently undertaken by the group EC3 from the University of Granada. Its proposed objective was to construct a classification table of science journals from Social Sciences and Humanities, national as well as international, integrating JCR (WOS), SJR (SCOPUS), ERIH, INRECS, LATINDEX and DICE. Rating a total of 20,756 national and international scientific journals, categorized into five groups: A+ excellent; A high quality; B national quality; C national secondary level; D the remainder not included in the other categories (Torres-Salinas, Bordons, Gimenez-Toledo, Delgado, Jimenez-

Contreras and Sanz-Casado, 2010). Of those mentioned so far, CIRC is the only bibliometric project to include Spanish journals, DICE, INRECS and RESH lost their funding and stopped updating between 2011 and 2012. The appearance of the fourth version, CIRC 2.0, is announced on their web page for December 2014. Consequently, precision testing will have to wait, as will confirmation that it will be adopted by the faculties as an explicit reference in the appraisal process.

As a consequence of this, it has been proposed that Spanish journals adopt international standards of quality. Leading us to another essential question: as a consequence, has the number of Spanish journals achieved an increase in the database of international impact? The inclusion of Spanish educational journals began at the end of the first decade of this century. Of the number of journals serving the area of Social Sciences, JCR includes 2,731, of which 81 are edited nationally (2.9%). If we look at SCOPUS, of 3,915, 79 (2%) are Spanish publications (Ramos and Calleja, 2013). However, what information is collected from the most significant databases, centered exclusively on the search criteria of EDUCATION & EDUCATIONAL RESEARCH?.

Table3. No of Spanish scientific education journals in different databases

Databases	# of journals	Distribution at rankings
JCR (SSCI, WOS) (2013)*	7	Q1: 0
		Q2: 0
		Q3: 0
		Q4: 7
SJR (SCOPUS) (2013)	22	Q1: 0
		Q2: 2
		Q3: 9
		Q4: 11
ERIH (2011)	25	INT2: 0
		INT1: 8
		NAT: 17
ANEP/FECYT (2012)	130	A+: 7
		A: 32
		B: 38
		C: 53
MIAR (2014)	402	ICDS entre 8-9: 11
		ICDS entre 6-7: 31
		ICDS entre 4-5: 44
		ICDS menor de 4: :316
<i>Seal of Quality - FECYT</i>	24	1ª ed.: 5
		2ª ed.: 4
		3ª ed.: 4
		4ª ed: 11
In-RECS (ed. 2011)	162	Q1: 29 (FI: 2.26-0.19)
		Q2: 29 (FI: 0.17-0.11)
		Q3: 29 (FI: 0.11-0.08)
		Q4: 75 (FI: 0.08-0.00)
Google Scholar(2012)	84	h-index 10-20: 19
		h-index 5-9: 26
		h-index 0-4: 39

Source: Collated data from JCR, SCOPUS, ERIH, ANEP, MIAR, FECYT, INRECS, Google Academic

\* Note: There exist two further Spanish publications in the area of *Psychology, Education* (one in Q2 and the other in Q4) which also appears in classifications like IN-RECS in the Education field.

The results collected in table 3, show us, in part, the disparity when evaluating the existing criteria of the quality indicators on scientific journals. In each of the databases, one journal appears in different categories or quartile. On the other hand, attention is drawn to the fact that not one educational journal is found in the

first category of the international rankings (JCR, SJR and ERIH). Equally, the number of journals considered excellent and that obtain a noteworthy impact result on a national level are scarce. Notwithstanding, it is noteworthy that in the last twenty years, the numbers have improved in all the classifications. As

highlighted by Rodríguez-Yunta (2010), the presence of Spanish Social Sciences journals in the WOS has increased considerably, in the sense that at the beginning of the century there was absolute invisibility (no Spanish journal appeared in WOS until 2007), to a minimal presence: passing from misery to poverty (Ramos and Calleja, 2013).

The JCR indexed 2169 Social Science journals, which supposedly represents 20.5% of these types of journals globally. 7281 are on Science and Technology, which represent 67.9%; 1228 Art and Humanities reflecting 11.6%. This imbalance between some groups and others is self-evident, and should we analyze this by nation, the result is even more pronounced (Moreno-Pulido et al, 2013). However this should lead us to evaluate these results with prudence and seriously consider the standard of the journals not included in the ranking: there is quality we just need to be able to measure it.

Another indicator that we should not lose sight of at the time of collecting the data is the difference of opinion on what titles should be included from the "education" group. Journals on sports science, evolutionary psychology or on a specific specialized didactic, are not always included in this group, which entails significant variation of data between one base and another.

Ultimately, despite the large number of educational journals published in Spain, very few are considered "excellent journals". Therefore the problems raised today are the sustainability, effectiveness and efficiency of the journal system itself, maintained in the large part by public funds (universities) without any acknowledgement or recognition.

### **The present and the future: printed and digital publications. The digital era, open access and altmetric journals**

The takeoff in Spanish scientific journals coincided with the digital revolution. Even a decade ago, journals were scarce and only printed. The explosion in digital content will

completely change the situation for Spanish scientific publications. As we indicated above, the majority of the printed journals were publically funded and their principal subscribers were university libraries, the universities, educational faculties and their departments. In the case of associations or academic scientific societies, the members generally provided support through their subscriptions.

However, the digital revolution prompted the editors of educational journals to join this change, creating mostly statistical websites (web 1), in which the contents were digitalized in varying formats, and shared with users. At first there were few who accessed these digital editions. However with the expansion of network technology and particularly the use of the internet for the research process, a greater dissemination of the contents was facilitated, removing temporary obstacles and providing capacity for researchers, lecturers and interested readers. It breaks one of the established historical rules regarding journal accessibility, diffusion and scientific research tools. As now it was no longer necessary to visit the library or subscribe to receive publications by mail, meaning being up to date more quickly. In 1994, RELIEVE (Electronic Journal of Educational Research and Evaluation) established itself as the pioneer educational publication, offering all its content exclusively online (Aliaga, 2014). We must wait for the first decade of this century to be able to observe two new consequences of the digital age: the transition from a printed to digital format, driven primarily by economic considerations and the beginning of brand new scientific publications in this format.

Gradually, it was not only seen as a way of reducing costs, but above all, as an exceptional channel for disseminating science. Proof of this is how printed publications have gradually begun offering their content on digital platforms, causing the majority of Spanish journals (table 5) to be offered on their own web sites with varying degrees of interactivity,



leaving the printed format in a clear trend towards disappearance.

Table 4. No. of Education journals in 2012 according to format

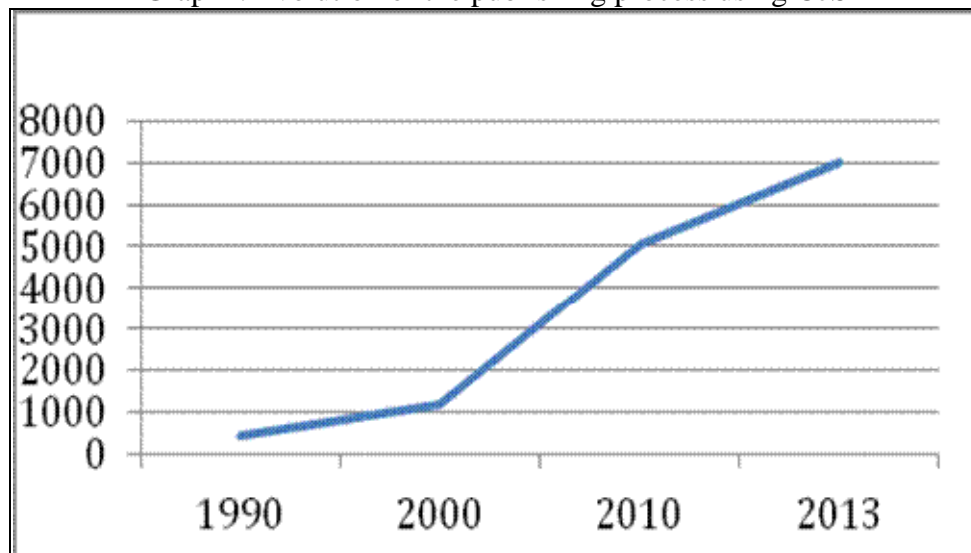
Education Journals		
Printed	Digital	Both
31	67	101
Total: 199		

Source: ISOC, 2014

Thus, presently, virtually all Spanish publications can be accessed online. However not all of their contents are available, especially those that continue to be subscription based and maintain embargo periods. Also over the last five years many journals have been digitized

using the journal management and publishing system open source software, OJS (Open Journal Systems), created by Public Knowledge Project (PKP 1994). The OJS platform (Open Journal Systems) assists with every stage of the referred publishing process, from submissions through to online publication and the indexing of scientific journals. Being linked to the major search engines, especially Google Scholar; it allows better process management and visibility in social media, enhancing significantly its outreach and potential impact. It shows the immense possibilities to manage, edit and disseminate in the publishing process the content of these publications. A spectacular worldwide evolution of the journals managed on this platform:

Graph4. Evolution of the publishing process using OJS



Source: PKP, 2014

However, despite the undeniable advantages posed by this option, we find a great dilemma facing journal editors: whether to establish a professional commercial model based on subscriptions or obtain economic resources by other means, as compared to the policy of open access. An embargoed article takes longer to reach the esteemed public hence visibility is smaller, dissemination initially reduced and not favorable for referencing by a large number of academics. Instead, these journals tend to offer high levels of quality and impact, either because they are

professionalized, supported by large entities, or because they belong to major corporations such as Elsevier, Springer, Sage, Routledge, Taylor & Francis and Wiley, (major editors of scientific journals worldwide). Moreover, with the digitization of content and journals using ISSN, digital costs have fallen significantly, having eliminated the most expensive part of the processes, printing paper and mail distribution.

Digitalization requires new editorial skills and has functions that have little to do with the

processes that were used just 5-10 years ago, and in some cases, still remain. Abadal and Rius (2006), in addition to highlighting the characteristics of digital journals and the quality criteria that they should guarantee, they consider the value of credibility as a necessary characteristic of the digital scientific journal, as well as the importance of ensuring the prestige and quality of sources, with valuable and accurate information. In this sense, it makes a claim of fulfilling the ten Stanford criteria, "a scientific quality website must meet certain minimum requirements regarding the information presented, given that accurate and specific information, gives greater reliability and effectiveness of the Web" (De Juanas, Pardo, Right, Sampedro and Ferro, 2012: 561-562). In addition, advances in scanning journals and new management processes should be given special consideration in the transition from paper publishing to the digital universe 2.0. Thus, there is an obligation and necessity to redefine the professional and personal skills required by the publishing team, in particular the ability to "think digitally".

To overcome the shortcomings of the publishing of Spanish scientific journals in Social Sciences and Humanities, a new mindset is necessary which involves "thinking digital" and that this process should be managed by professionals specifically trained for it. The technological knowledge necessary for this environment includes: XML, metadata, enriched formats, CMS, publishing system type OJS, the new formats for reading on mobile devices ... (Rodríguez-Yoke and Tejada, 2013: 2).

Any self-respecting scientific journal that wants to excel in the field of Science Education in the 21st century and obtain good circulation in the social media must combine editorial quality with impact criteria and management 2.0. In this regard it is essential to create a profile of the publication in Google Scholar, which provides the citation index and rank position (h-index), obtained from quotes detected on the network in various "scientific" documents.

In this scenario, a publication should have at least a documentation specialist, a community manager and a computer technician or failing that, people capable of performing these functions. Therefore, the editorial team must professionalize and become working groups with clearly defined technical and scientific functions. At present the reality equates to the premise, that if you're not online, you do not exist. Even so, it's not enough just to be online, it is necessary to be characterized and identified with your own brand image, which should be distinct and makes us stand out from the crowd.

In any case, the digital revolution does not end here, because it is not enough to only have a presence on Google or integrate the journal into the OJS. The editorial branding should be reinforced on the social networks (Twitter, Facebook, Mendeley, CiteULike, Impact Story, etc.) and on the networks specifically created for researchers in the last decade (ResearchGate, Academia.Edu, etc.). Cooper (2014) has recently put forward these possibilities together with the use of online strategies and social media to disseminate research in education, ie the use of all channels and tools available through Social Media for researchers (Blogging, Microblogging, Location, Social Networking, Wikis, Social Bookmarking, Social Bibliography, VideoLive, etc.). The impact of these social media tools in the dissemination of journals is increasingly the subject of analysis. A clear example is the possible effect of twitter and blogs in the significant increase in the impact and visibility of an article (Terras, 2012; Cabezas-Clavijo, 2014). However, as highlighted by Torres-Salinas, Cabezas-Clavijo and Jimenez (2013), that although the correlation between tweets and downloads is remarkable, it is not similar between tweets and the number of citations received, at least in the short term. However, it has been found that the most cited articles are also highly tweeted and those which are included on a recognized blog site have a major impact on the social networks of researchers.

Such is the impact of social media in the dissemination of scientific production that so-

called Altmetrics indicators have appeared. Indicators that measure scientific-academic activity and presence in the web 2.0 or what is now known as webmetrics. "For example, the underlying idea is that blog references and the number of retweets, or even readers retaining an item in a citation manager can be used as a valid measure of the use of scientific journals" (Torres Salinas et al, 2013. 54). This creates perspectives that will revolutionize the editing process of the scientific product and journals will need to create new ways to publish and distribute. The ranking of journals will continue to give us guidance in identifying the best publications, their quality, visibility and internationalization, etc. However, the impact will be linked to each study and be yet another direct indication of their quality. Undoubtedly, "the web revolution shifted the focus from the journal (a simple wrapping) to the article, the true scientific communication unit (...)" (Aguillo, 2014: 114). This is going to require us to better select new publications and disseminate closely with the author the research contents using the different channels of the Social Media. In Anglo-Saxon scientific journals covering the area of science this proposal is already a reality, as we can see with PLOS, Nature or Science. Something we in Education should undertake soon.

We cannot fail to mention that within the new metrics there exists a new identifier that has been quickly adopted, as it provides increased reliability throughout the assessment process of each journal and article. We refer to the DOI (digital online identifier), the assigned number that identifies the journal and every article uniquely, allowing for a reasonably complete statistical monitor (access, number of downloads, interactions, quotes, etc.). Its disadvantage is that it has an economic cost, both annual and per each article, varying and dependent on the business model of the journal or publisher. Increasingly, to combat the loss of citations through error there are more journals that have opted for assignation of their articles to the DOI.

Altmetrics are new and perhaps still a trend which needs to consolidate prior to general acceptance. However, despite its newness and only recent application to science contexts, we must take into account that it may still suffer from certain limitations when used. Among them, whether they belong to the so-called liquid culture or the solid culture (Area-Moreira Ribeiro-Pessoa, 2012). Torres-Salinas and Cabezas-Clavijo (2013: 114-15), an interesting reflection, supported by Altmetrics through the view, that not everything that can be counted, actually matters, hence it presents even greater difficulties and limitations:

Unlike bibliometrics, under the label Altmetrics, a heterogeneous and diverse source of information and indicator group coalesces. Firstly, sources of information, social networks and platforms are grouped. These are not necessarily strictly in academic or scientific fields, such as general platforms like Facebook or Twitter. Others, like ResearchGate and Mendeley, are focused for researchers. This problem extends to the indicators, since each platform also generates its own metrics. This makes Altmetrics a catchment within which there can be dozens of indicators. While within bibliometrics there are also hundreds of indicators, the raw material is always references, the genuine expression of recognition in science.

Virtually none of the Spanish educational journals possess systems which are integrated and that allow access to such data. Similarly there is in existence, for example, Plum Metrics, a project to build a new system of metric indicators in the social environment created for research and teaching. Based on 5 categories: usability (downloads, views, interactions, access, etc.); additions (favorites, bookmarks, saved documents, readers, visitors, etc.); references (comments, RSS, mentions in wikis and blogs, Google, etc.); Social media (tweets, likes, shares, ratings, etc.); Citations (DOIs, Microsoft Academic Research, Scopus, USPTO, etc.). These indicators are already providing very interesting information when analyzing the real impact of a journal.

The quantity of information that Altmetrics collects enables an analysis hitherto unthinkable. Projects like Altmetric.com funded by companies like Springer publishers and with databases such as SCOPUS, are taking the first steps to incorporating these new metrics, possibly being used in a campaign against the impact factors prepared by the JCR Thomson-Reuters.

## Conclusions and discussion

After analyzing the situation of scientific journals in education promoted in our country, we corroborate the belief of most editors: there has been an extraordinary growth of these publications. Without doubt, there has been a great effort to get Spanish journals into the international rankings, this is despite limited financial support and the high personal costs of self-training in editorial management. There has been much progress, but there are still major problems to be addressed, and many of them do not depend on the editorial teams.

We agree with the experts that one of the problems relates to the excessive number of journals, not quantity but quality (too many, 108 according to DICE, almost half of the total, meet less than 31 LATINDEX criteria, not reaching the core indicators to achieve a minimum competitiveness in this area). Probably, "excellence is not achievable for everyone and it is a difficult objective for a journal that focuses on institutional interests or has clear structural weaknesses" (Rodríguez-Yoke and Giménez-Toledo, 2013). Perhaps, it might be appropriate to close some journals or try to merge some titles, so that the effort to manage and promote a publication is more effective and fruitful. At a minimum, we could apply this to those journals that strive to be competitive in the dissemination of Science. There is an urgency to find new ways to support publications that already have national recognition, but which require assistance in the following areas, technical, financial, personnel and also have an adequate Science policy to assist them to compete internationally in the very near future. The effort to increase the

quality of periodicals must be presented as linked to management professionalization and sustainable business models. It is unacceptable that journals function at the expense of personal commitment and unpaid work done by unrecognized editorial teams. Teams who selflessly devote their time to enable other researchers to have known channels to publish their work, their dedication should be valued at least through promotional prospects and with incentives from the faculty.

Although we positively value the open access to knowledge, this does not preclude the editing and management of journals supported by a clear business model. Some journals have followed the trend of Anglo-Saxon countries by transferring issue to one of the largest specialist publishers (Taylor & Francis, Elsevier, Sage, etc.). This entails costs (economic) and benefits (entry into the large databases), without dismissing the concerns regarding new monopolies in science that ultimately do not facilitate open and universal access. The consideration of alternative models of management is one of the most important challenges for our future. Paradoxically, government policies in open access publishing is conducive to disseminating research, however its scientific value is not recognized in the evaluation process, unless it is a journal that is included in WoS (Giménez-Toledo, 2014).

In next decade, the progress for Spain's scientific journals in Social Sciences will be closely linked to national and regional policies governing the assessment of the research production. The legislative changes, which according to the Government will occur in the coming months, doubts about the arrival of the desired objective definitions on the evaluation criteria (SEP, 2013) by the major agencies (CNEAI-ANECA, regional agencies and ANEP), and a defining statement on the use or not of Spanish classifications to achieve positive faculty evaluations, could enhance or diminish the interest of researchers to publish in Spanish journals of a medium or high impact, threatening the survival of the journals themselves. A step in either direction may



involve playing in the Spanish league of recognized journals or only in the seven included in the WOS, causing the rest to disappear or alternatively we could be left with a group of about 50 quality journals.

Although initiatives do exist, such as those already alluded to and promoted by FECYT. Through their stringent evaluations and by the awarding the Quality Seal FECYT attempt to encourage excellence in Spanish journals. However should the award not be explicitly recognized by the assessment bodies, we will be wasting public money by investing in these evaluation projects, as has already occurred with the useful tools IN-RECS, DICE or RESH, that having consolidated, have been discarded for political reasons and lack of funding

Obviously, we cannot lose sight of international standards, and the necessary inclusion in the relevant selective databases. But this does not prevent our country maintaining a database of selective reference for our scientific production, which in combination with articles published in journals similar to the JCR, enables the faculty to obtain positive evaluations of their research productivity. As with the use of radiography in a diagnosis, having an internal and external examination of the scientific journal is something absolutely essential so as to perform an objective and transparent analysis in each field and make decisions on Science policy.

We cannot fail to mention language as a focal point for the future of Spanish journals. Undoubtedly, English is the language recognized worldwide in the field of experimental sciences and bio-health. However, we should ask whether this language should become the only means of communication in the Humanities and Social Sciences. It is clear that there is no uniformity in the object of research in our field. Nor are all topics of international interest, which, coupled with cultural differences and the expressive richness of our language itself, means that to publish only in English is perceived as unacceptable by many researchers. Furthermore, Spanish

research in the Humanities and Social Sciences remain a benchmark in Latin America, in line with the unstoppable expansion in Spanish speakers. In this context, to renounce Spanish language scientific production in the field of education could be a mistake that others can take advantage of. In this sense, the political authorities should be alert to contracts such as those that have been signed by the Latin American data base Scielo with Thomson Reuters to include on its website SciELO Citation Index. A website where our Spanish educational journals have no place, as it does not have an agency to rate our journals.

On the other hand, non-anglo-saxon countries are in a situation of unequal opportunity when competing in impact factors, due to the importance of the publication language in receiving citations. Proof of this is that of the 219 education journals included in the final list of the JCR (2014), only 39 are administered in countries outside of the English-speaking world: Asia Pacific (5), Germany (4), Brazil (1), Croatia (1), Spain (7), Netherlands (14), Italy (1) Lithuania (1) Mexico (1), Scandinavian countries (1), Portugal (1), Turkey (3). And of these, 29 are in English or bilingual. It is obvious that "not publishing in English does not preclude selection by the JCR, but the article is highly unlikely to get in without doing so, regardless of the quality achieved" (Ramos and Callejo, 2013: 49). While recognizing that the quality of journals should be independent of the use of English, the reality is different and editorial teams must consider the possibility of publishing in a bilingual format, a step performed by a few journals like *Psicodidáctica* and *Revista de Educación*. An additional problem is the cost of translations and professional reviews to ensure a correct English translation, something available to very few.

Editorial management is a key element in the development and positioning of any journal, but we have also shown it as being one of the weaknesses of our publications. Getting further economic sustainability and attracting originals is leading many journals to find other

management models, other business models and other publishing formats, primarily through the web. We must not confuse visibility, editorial improvement and cost reduction with digital publishing. Editorial management, whether printed or digital is complex regardless of the “know how” necessary for each format, so it is essential to promote the professionalization of the editorial teams. Establishing editor networks could be a good start to achieving these objectives.

Despite the pressure on editors and researchers, we should not forget to be critical of the evaluation indicators used and their adaptation to the Social Sciences: Are all the good articles cited? Are all the impact journals good, regardless of the citations received? Does the size of the subject or specialty affect the possibilities of publishing in high impact journals? Do professors that research local subjects, such as history of education have the same opportunities to be published? Do factors such as age, seniority and research experience influence? Do the evaluating agencies use adjustment criteria to correct possible inequalities? Is a proper citation window only two or three years for science education? Are there pressures, implicit or explicit, to quote certain journals? Are informal agreements between journals and researchers to increase their own impact factors legal? Is there consensus on practices that may be considered illegal? Is it appropriate that a researcher has to devote part of their time to improve the dissemination of their work?

Limiting a publication's assumed quality to only impact measures leaves out many other factors that must be taken into account in the assessment of excellence (Aliaga and Suarez-Rodriguez, 2008). Hence, the need to move into new complementary measures such as altmetrics, which enable new evaluations up to now unthinkable. The new metrics could provide richer readings, more objective, reliable and transparent when assessing the impact of each article.

In summary, important steps have been made to achieve excellence in our journals. The next step is to strengthen the international presence of a greater number of journals within the indexes of the most relevant databases. Science policy in the next five years and the adoption of professional models in the management of journals will be the two decisive steps to the rise or fall of a large number of scientific journals.

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## NOTES

<sup>[1]</sup> The ANEP is the *National Assessment and Planning Agency*. In January 2007 the document "Quality criteria in Humanities research" prepared jointly by ANEP and FECYT and edited by ANEP / FECYT is published. His first classification (2007) distinguishes four categories (A +, A, B and C), updated in 2008. Later updates are performed by the group holding DICE.

<sup>[2]</sup> The European Reference Index for the Humanities (ERIH) was created by the European Science Foundation and published two updates (the first in 2007 with 16 Spanish journals and the latest in 2011 with 25) from a list that ranked European journals three categories (International 1 International 2 and National). Since January 2014, the maintenance of this index was transferred to the Norwegian Social Science Data Services (NSD), which is preparing a new, ERIH PLUS, version 2015.

<sup>[3]</sup> CARHUS is a database promoted by the Autonomic Government of Catalonia.

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## ABOUT THE AUTHORS / SOBRE LOS AUTORES

**Ruiz-Corbella, Marta** ([mruiz@edu.uned.es](mailto:mruiz@edu.uned.es)), Profesora Titular en el Departamento de Teoría de la Educación y Pedagogía Social de la UNED. Secretaria Académica de Programa de Doctorado de Educación de la Escuela de Doctorado de la UNED. Editora, desde 2004, de la revista *Educación XX1*. Líneas de Investigación, teoría de la educación, educación moral, política educativa con especial incidencia en la educación superior. Miembro del grupo de investigación ESPYD (Educación Superior Presencial y a Distancia). Su dirección postal es: UNED, Facultad de Educación, c/ Juan del Rosal, 14. 28040 Madrid (España). [Buscar otros artículos de esta autora en Google Académico / Find other articles by this author in Scholar Google](#)

**Galán,** ([agalan@edu.uned.es](mailto:agalan@edu.uned.es)), Profesor Titular en el Departamento MIDE de la UNED, Facultad de Educación. Secretario General de la [Sociedad Española de Pedagogía](#) y Editor Jefe de [Bordón](#). Revista de Pedagogía. Vicepresidente de la Asociación para la Investigación y la Docencia Universitarias. Ha sido *Research Scholar* en Boston University, en el M.I.T., en la Universidad de Edimburgo y *Fellow* del Colegio Complutense en Harvard. Durante dos años investigó en la Agencia de Calidad de las Universidades de Madrid (ACAP) como Jefe de la Unidad de Evaluación para la Contratación del Profesorado. Dirige el Grupo de investigación ESPYD (Educación Superior Presencial y a Distancia). Su dirección postal es: UNED, Facultad de Educación, c/ Juan del Rosal, 14. 28040 Madrid (España). [Buscar otros artículos de este autor en Google Académico / Find other articles by this author in Scholar Google](#)

**Diestro, Alfonso** ([adiestro@edu.uned.es](mailto:adiestro@edu.uned.es)). Profesor del Departamento de Teoría de la Educación y Pedagogía Social de la UNED. Su principal línea de investigación es la 'Dimensión Europea en la Educación', desde la política educativa, la teoría y la historia de la educación. Es coeditor de la revista *Foro de Educación* @alfonsodiestro. Miembro del grupo de investigación ESPYD (Educación Superior Presencial y a Distancia). Su dirección postal es: UNED, Facultad de Educación, c/ Juan del Rosal, 14. 28040 Madrid (España). [Buscar otros artículos de este autor en Google Académico / Find other articles by this author in Scholar Google](#)

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<b>Abstract / Resumen</b>	<p><i>The Spanish scientific journals on education have experience an exponential growth in recent decades. The reasons are closely related to the supranational policies of university quality assessment, with specific emphasis on research output with "impact". This way, in just twenty years, Spanish journals have become, in detriment of books, in the main channel of communication of the also increasing educational research. In an extremely competitive global context, dominated by Anglo-Saxon culture, the Spanish journals have made a significant improvement in the quality of editorial management processes, in accordance with international quality indicators. However, access to the most recognized indexing, such as Web of Science or Scopus, and especially competing in impact factor (number of citations), is a mission almost impossible for our journals. This article focuses, on the one hand, on the evolution of the Spanish educational journals, the analysis of its growth and its international presence. On the other hand, quality indicators and the indexing that categorize journals, both nationally and globally, as well as its problems and limitations, are discussed. It is a descriptive study that analyzes indicators and classifications of various selective data bases consulted through documentary and digital sources. Finally, it presents a prediction of the short term evolution of impact metrics (altrimetrics) and how they should be addressed. It also discusses the importance of establishing government policies on the assessment of research that are transparent and in accordance with the area where there is a need to combine our scientific production in Spanish and international journals.</i></p> <p>Las revistas científicas españolas del área de educación han experimentado un crecimiento exponencial en las últimas décadas. Las razones están relacionadas con las políticas supranacionales de evaluación de la calidad universitaria y con su acento expreso en la producción investigadora “de impacto”. Así, en tan sólo veinte años, las revistas españolas se han convertido, en detrimento de los libros, en el canal principal de comunicación de la –también creciente– investigación educativa. En un contexto global extraordinariamente competitivo y dominado por la cultura anglosajona, las revistas españolas han realizado una notable mejora de la calidad de los procesos de gestión editorial en función de indicadores internacionales de calidad. Sin embargo, acceder a las indizaciones más reconocidas, como <i>Web of Science</i> o <i>Scopus</i>, y, especialmente, competir en factor de impacto (número de citas), es una misión casi imposible para nuestras revistas. Este artículo se centra, por una parte, en la evolución de las revistas españolas de educación, el análisis de su crecimiento y su presencia a nivel internacional. Por otra parte, se examinan los indicadores de calidad y las indizaciones que categorizan a las revistas, tanto a nivel nacional como a nivel mundial, así como sus problemas y limitaciones. Se trata de un estudio descriptivo que analiza los indicadores y las clasificaciones de diversas bases de datos selectivas consultadas a través de fuentes documentales y digitales. Finalmente, se hace una previsión de la evolución a corto plazo de las métricas de impacto (<i>altrimetrics</i>) y cómo deben afrontarse. Se discute, además, la importancia de establecer unas políticas gubernamentales de evaluación de la investigación transparentes y acordes con un campo en el que es necesario combinar la producción científica en revistas españolas e internacionales.</p>
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