Digital journalism competences. Systematic review of the scientific literature on new professional profiles of the journalist

Competencias digitales en periodismo. Revisión sistemática de la literatura científica sobre nuevos perfiles profesionales
del periodista

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ABSTRACTS
Introduction: The study undertakes an analysis of the scientific literature that has focused its interest on the training in new technologies for information professionals. With this purpose, the work limits the review to 119 indexed articles in the Web of Science (54) and Scopus (65) from 1998 until 2017. The objective of the study is to identify what are the technological competences most demanded by the industry, and which are the inalterable values of journalism. An exploration of the speculative corpus determines the following result: the professionals, the businessmen and the audiences agree on the continuity of quality journalism depends on the integration of three environments: the technological, the economic and that of the fundamental principles of the

profession. The argument raise a theme where researchers must deepen how the universities can contribute to the improvement of journalism in these three areas.

KEYWORDS: journalism; digital competences; professional profile; digital journalism; ethics in journalism.

RESUMEN
Introducción: El estudio emprende un análisis de la literatura científica que ha centrado su interés en la formación en nuevas tecnologías de los profesionales de la información. Con esa finalidad, el trabajo acota la revisión a 119 artículos indexados en las bases de datos *Web of Science* (54) y Scopus (65), entre 1998 y 2017. El objetivo del estudio es determinar cuáles son las competencias tecnológicas más demandadas por la industria, y cuáles son los valores inalterables del periodismo. La exploración del corpus especulativo determina el siguiente resultado: los profesionales, los empresarios y las audiencias concuerdan que la pervivencia de un periodismo de calidad depende de la integración del entorno tecnológico, el económico y el de los principios esenciales de la profesión. La discusión plantea un tema de fondo en los que investigadores debemos profundizar: cómo las universidades pueden contribuir a la mejorara el periodismo en esos tres aspectos.

PALABRAS CLAVE: periodismo; competencias digitales; perfil profesional; periodismo digital, ética en periodismo.

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1. Introduction

Almost a quarter of century has elapsed since 1994, where the first online newspaper in the world appeared, the Palo Alto Weekly (Carlson, 2003), and hereinafter, the change of the technological paradigm has revolutionised not only the world of communications, but also the grounds of the society. As will be seen later, Spain is one of the pioneering and most prolific countries about researches on online journalism and digital competences. According to professor Díaz-Noci (2007) there is a key date to indicate the onset of studies on journalism in Internet in Spain and Brazil: 1996. On this year, two professors of the *Universidad Federal de Bahía* (Brazil), Marcos Palacios and Elias Machado, published a groundbreaking *Manual de jornalismo na Internet*. That same year, and with resembling features, several professors of Universidad del País Vasco (Spain), among them Koldo Meso and Javier Díaz Noci, publish El periodismo electrónico. Información y servicios en la era del ciberespacio. Authors like Salaverría (1999), among others, sum to these initial studies and, there are steadily produced many articles and books about digital journalism.

After twenty-two years of scientific production, it seems convenient to elaborate a balance about the evolution of studies on digital journalism, to understand under what terms the academic discussion has developed among the most connoted experts in the area. In our case, and considering the huge volume of speculative material, we deem appropriate to focus our object of analysis on indexed articles in the two databases of reference in terms of impact: Web of Science (WOS) and Scopus. Therefore, due to methodological reasons we will explain in the corresponding section, we discarded (although we mention any specifically due to its historical relevance while tracing the evolution) the

research results published in specialised books, conference proceedings, essays, manuals, conferences, as well as other forums and alike. We authors will undertake this task in the near future, in an ongoing research.

2. General overview

By the late nineties of the 20th century, and still in the early years of the 21st century, the digital versions of the mastheads of reference in different countries served as virtual displays of the editorial models on paper and, often, the websites reproduced the contents of analogical editions, causing what was called the "paper-isation" of the web, or using the words of Salaverría (2010), the "first dump generation". However, the journalistic editions on Internet were assuming distinctive compulsory editing practices that made the most of the advantages of the URL, which represented the creation of specific patters for the professional routines, the architecture of contents, the new cyberjournalistic genders, the management of advertising, the information processing and spreading, among others.

Over time, the innovations in the computing and mobile phone fields also entailed a radical change in the generation and reception of contents. The consumption of news using the computer soon stopped being hegemonic compared to other type of screens such as tablets and, especially, smartphones, that created a new revolution in the management, dissemination and reading of information. There also added the presence of blogs and social networks, such as Facebook (2004) and Twitter (2006), which in only one decade completely transformed the world of journalism. As a backdrop, the world economy suffered a crisis that destroyed tens of thousands of jobs in the communication sector, which triggered journalists and education centres to insist in the concept of entrepreneurship as a key professional competence in the future (Casero Ripollés, 2013). This vertiginous scenario has led universities and information companies to rethink the professional profile of the journalist, in order to adapt his competences and skills to the new types of media and audiences.

The need to fit the competences in the new setting of online journalism was introduced since the dawn of the second millennium by different authors, like Deuze and Dimoudi (2002, 2004, 2005), who noticed from this germinal stage that a specific training of reporters working with online contents was indispensable. However, even in 2010, information companies were reluctant to change, as mentioned by Salaverría in La Vanguardia, who indicated that the media experienced a "second dump generation", a transition period that evidenced that back then we were experiencing the "adolescence of the digital journalism". Seven years later, this adolescence has turned into a vigorous youth and, in 2017, neither scholars, professionals nor journalistic companies question a reality that has imposed in all the stages of the informational process.

What are the professional competences required by the labour market of the digital journalism? Firstly, scholars and professionals coincide that the practice of an informational career involves, above all, a re-assessment of the essential principles of the discipline (Cruz Álvarez and Suárez Villegas, 2017; Salaverría, 2016; López, 2017; Berganza, Lavín and Piñero, 2017; Lugo Ortiz, 2016; Palacios, 2016; Palomo and Palau Sampio, 2016; Sánchez García, 2015; Arrese, 2015; Spyridou, 2013; Perlado del Amo, 2013; Casero Ripollés, 2013, among others). It is what Arrese calls retro journalism, because it is more urgent and relevant for the journalism, at least today, to interpret its economic and technological context based on the permanent principles and values of the profession (retro perspective), than to try to adapt to those environments based on the principles and values that the technology and the economy entail at every moment (neo perspective) (Arrese, 2015, p. 17).

Arrese warns about the fact that the omission of the aforementioned thesis has led many media to make decisions about contents, resources, processes and activities that have eroded their capacity to practice journalism based on these permanent values and principles. On the other hand, "journalistic brands that assumed this approach and that achieved the exemplary integration, of the three debating logics on media - the journalistic, the technological and the economic - play an essential role in the revitalisation of journalism" (2015, 17).

Among the classical competences of journalism, the most outstanding are: professional vocation (professional identity competences), service vocation (solidarity competences), know-how of good storytelling (narrative skills), thorough investigation of a theme (reporting skills), honesty, integrity and responsibility with the sources, the medium and the public (ethical, deontological and juridical competences), empathy against suffering (psychosocial skills), a great sense of justice (social commitment competences), creativity (idea association skills for transforming things), common sense, criteria and reflexive capacity - of analysis (speculative competences), independence and freedom (autonomous learning skills), etc. As observed, most of them go far beyond the technical management and the application of standardised policies, and their absence has led to an identity crisis of journalism, with deep and disastrous consequences for the profession, the society and democracy.

On these professional grounds there articulates the technical competences essential for the practice of journalism in an digital environment. After the first decade of the 21st century, different studies, like those of Cebrián (2009), Salaverría (2008 and 2009), López and Pereira (2010), Túñez, Martínez and Abejón (2010), and Barrios and Zambrano (2015) evidenced the need to adapt to the technological environment, and like indicated by Bologna, it required a more specific education that provided professional skills for application in practice. At this stage, the journalistic education required a polyvalent profile, which entailed:
1. Capacity to search, process and spread multimedia contents, creating genders distinctive of the digital language (text, hypertext, audio and video).
2. Capacity to interact with new audiences, generating a steady feedback of informational messages, ideas and opinions.
3. A high specialisation in different fields of knowledge, in accordance with the skilful management of technological tools.
4. Deep knowledge of the main contents marketing techniques and oriented to the achievement of economic results in the digital scenario.
5. A profile oriented to the expert management of social networks as an indispensable element in the management of newsworthy products and the creation of a more dynamic dialogue between and with users.

3. Method

In this study we introduce a review of the main researches focused on digital competences for journalists. The study followed two pathways: the first one was composed of a review of the scientific literature with a total of 119 indexed articles in the databases Web of Science (54) and Scopus (65), between 1998 and 2017, of highest reference in terms of quality standards. The second stage entailed a content analysis of the articles linked to our study object.

In order to delimit the systematic review of the results, the digital descriptors, skills and journalism were used. After using the excluding criteria, the articles that do not reflect upon the digital competences of the journalist have been excluded. Therefore, the sample included a total of 30 high

impact articles. For the content analysis, the studies were classified depending on their theme and number of citations:

– First studies about digital competences.
– Studies about digital competences for journalists.
– Teaching of digital competences of future journalists at the university.
– The role of the journalist in the current era: digital competences of the journalists on social networks.

4. Results

4.1. First studies about digital competences

At international level, the term "digital competences" (translation: *digital skills- digital competences*) appeared in the scientific literature by the end of the fifties. The first texts that used this concept came from United States Faculties of Mathematics and Medicine (Susskind, 1958; Hanley *et al.*, 1959). The scientific researches handled about experimentation, collection of benefits and potentialities of computers versus manual tasks. These studies only focused their attention on the instrumental capacity of machines (computers) to invigorate the analysis and production processes.
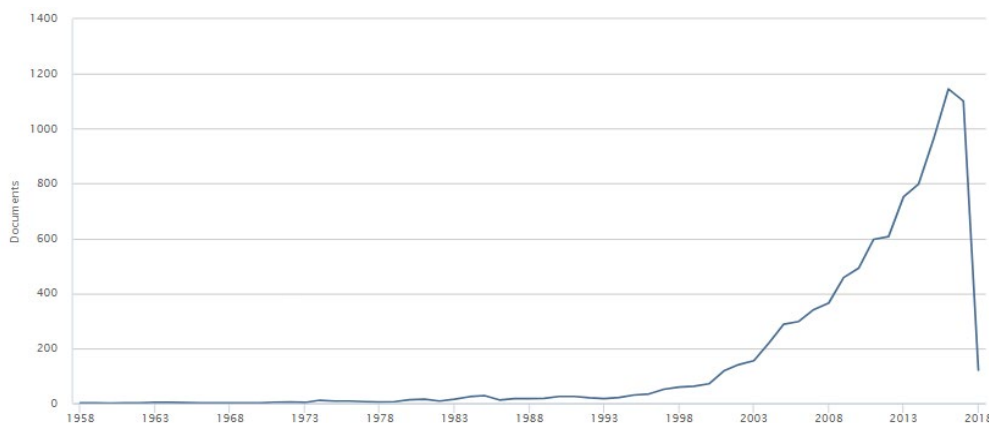

Figure 1: The onset of the scientific production about "digital competences" (1958-2018).
Source: Scopus.

Until the mid sixties, the term *digital skills* was not linked to other disciplines like Psychology and Humanities. In these cases, the publications highlighted the pilot tests that measured the behaviour of men through machine simulations (Adams and Webber, 1963). Later, technology was used to conduct psycho-physiological studies of patients with different pathologies (Benson, Huddleston & Rolfe, 1965).

After the sixties and eighties, the term *digital skill* was broadly accepted in the academic journals of Medicine. Castro (1972) conducted several experiments about the use of cortical ablation in rats to study the basic mechanisms of functional recovery. In this same line, other authors focused on analysing the effects of visual regeneration on deaf children through different digital instruments (Martín & Sachs, 1973). Up until then, the term "digital competences" was only associated whit the effectiveness of technology in the health area. The results of the reports highlighted the accuracy and the promptness of findings thanks to technology.

4.2. Digital competences for journalists

Since in 1994 the Western journalism broke into the cyberspace, pioneer authors like Negroponte (1995) warned about the emergence of "new professionals" that needed to adapt their education to a new unprecedented technological scenario. Almost a quarter of century later, Internet has completely revolutionised the informational product, professional routines, the roles of sender and recipient, platforms, audiences and the academic education (Túñez-López; Martínez-Solana; Abejón-Mendoza, 2010).

The review of scientific works about the term in the databases *Web of Science* (WOS) and *Scopus* indicate that the first studies that define the phenomenon of digital journalism and its features date from the late nineties. One of the more referenced studies is *Digital imaging skills and the hiring and training of photojournalists* by John T. Russial and Waine Wanta (1998), from the University of Florida. The text discloses the relevance of the combination of the journalistic skills and the technical abilities before the use of the camera and the manipulation of images.
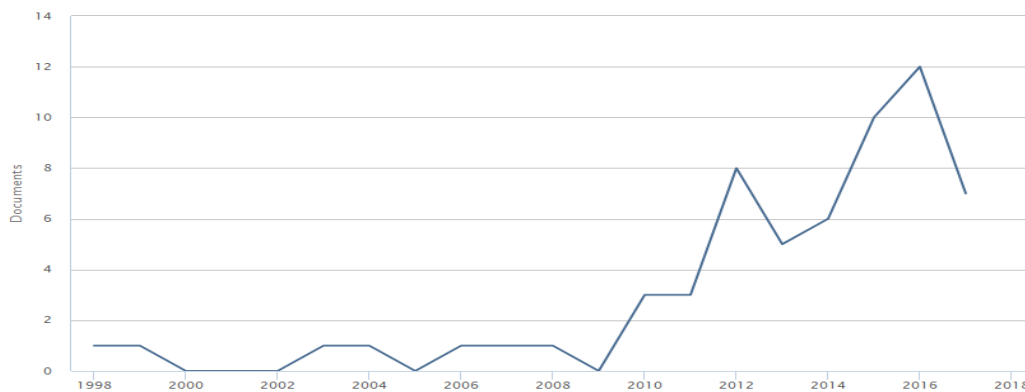

Figure 2: First scientific documents about the digital competences for journalists (1998-2018).
Source: Scopus.

In this first stage, the studies focus on the traits and features of the *online journalism*. Likewise, they start to discern about how technology may impact the way journalists work and the fundamental principles of the professional activity. In Spain, the contributions of Díaz Noci and Meso Ayerdi (1998) are innovative in this germinal age, being the first ones in using the Spanish syntagms *periodismo electrónico* and *periodismo digital.*

At international level, another one of the first researchers that thins about this issue is the professor Mark Deuze, from the University of Amsterdam, which first study about the subject (1999) deals with standards and skills of the digital journalist, considering three new realities: the interactivity, the personalisation and the convergence.

Over the years, the researchers start to use qualitative methods - like the in-depth interview- and quantitative methods - like the descriptive questionnaire- to think about how the journalistic editorial offices have reconfigured, and how the professionals and also the students of the communication faculties assess the change (Casero-Ripollés, Ortells-Badenes & Doménech-Fabregat (2013). This way, the studies describe the informational treatment, the rigour of the profession, the management of the interaction, the distribution of contents, the elaboration of informational products (Deuze & Dimoudi, 2002; Salaverría, 2010), the redefinition of productive routines that conduct the business demand towards a profile of journalists with polyvalent and multimedia technological specialisation

(Túñez-López, Martínez-Solana & Abejón-Mendoza (2010), the new business models (Casero-Ripollés & Izquierdo-Castillo (2013), the emergence of phenomenons like *bloggers* and the use of this modality in the spreading of informational contents (Gil de Zúñiga, *et. al.,* 2011).

In short, how Internet and related tools are perceived as an empowerment of journalists to optimise their works (Spyridou, *et. al.,* 2013), like the case of social networks (González-Molina & Ortells-Badenes, 2012; Carrera-Álvarez, *et. al.,* 2012). However, there is always the critical view before the scepticism of journalists and audiences, who mistrust media that keep distancing from their informative and deontological roles (Ottosen & Krumsvik, 2012). This view has been endorsed at European level by studies that include researches of the five most populated countries in the European Union: Germany, United Kingdom, France, Italy and Spain, and that have based on questionnaires to professionals of renowned prestige and 500 regular users of digital media (Ramírez De la Piscina, *et al.,* 2016): both professionals and users coincide that the news from 2020 will be better and more interactive than today. Surprisingly though, the professionals are much more critical than users when it comes to evaluate the quality of news. "For journalists, to overcome the crisis of press involves, among other measures, to promote the analysis, prioritise quality over quantity and offer a greater specialisation".

4.3. Digital competences in the teaching of journalism in the university

The settlement of the digital journalist as an activity that started to displace the mainstream journalism obliged professional and academic environments to rethink the education in media competences of practising journalists, as well as of those who were still at the university. To the demand of companies, there also added a requirement of the European Higher Education Area (EHEA) that indicated the pathway to follow in the academic spheres: to adapt study programmes to the market needs.

In Spain, the first demands were introduced in congresses and professional forums, like the main Congress of Digital Journalism in Huesca (Aragon), which promotes since 2000 reflections upon the digital transformation experienced by journalism. As expected, this encouraged researches to focus on this subject. Tornero & Tejedor (2007) were some of the pioneering authors that analysed the curricular inclusion of cyberjournalism in the study programmes in the university. In their study they explain two main issues: that, on the one hand, there is a conservatism by journalistic companies, that do not experiment nor invest in innovation, due to the fear the new technologies trigger, in terms of the threat in the business model that Internet represents. "The cyberjournalism not only demands the adjustment of the skills of journalists, but also creates new functions and roles". (2007, p. 15)

On the other hand, Sánchez-García (2016), carried out a comparative research of the study programmes of Journalism before and after the incorporation of EHEA in 35 Spanish Universities. The research noted a progressive change in the education tendencies of journalists in Spain with a greater specialised practical teaching and a reduction in the theoretical-multidisciplinary content. As a counterpart, the limited inclusion of mandatory courses in new technologies for the training of new professional profiles was evidenced. A flaw that also manifested in the study of Palomo and Palau-Sampio (2016), because the it determined that both consultants and innovation directors of Spain, United States and Latin-America, as well as professional offers published in the *Infojobs* website required a profile of an adaptive journalist, able of creating informational contents, integrating into multidisciplinary teams and willing to assume complementary functions regarding audiences, a scope that it is not always met at the university teaching.

This perception has been reinforced by studies conducted in other countries, such as the one conducted by Lugo-Ortiz (2016) in Puerto Rico, and that contrasted the opinions of directors of academic programmes on journalism, university professors, directors and supervisors of media. While professors and academic managers emphasized on the traditional competences –writing, critical thinking and general culture, the leaders of the industry considered that the academic education was distant from what media actually needed.

For Gertrudis-Casado, Gertrudix-Barrio and Alvarez-Garcia (2016), it was indispensable to integrate in the professional education of journalists, the conceptual, procedural and attitudinal competences that allow an optimum process of collection, treatment, analysis and presentation of data, required for elaborating multimedia informational products. As stated by the study, this will contribute to the growth of the culture of transparency, accountability, the socio-technological development of the web and the opening of public data that, in short, make room for a social intermediation of open data that facilitates the empowerment of citizens. A proposal that attunes with that of Hernández-Serrano, *et al.* (2017), who suggest that the responsibles for the media education must develop training initiatives complying with the possibilities of the social logic, combined with the communicational and computerised logics, to achieve an efficacious and educational news consumption.

The most recent study encompassing an international spectrum was conducted by Tejedor-Calvo & Cervi (2017), after the comparative analysis of twelve study plans on Communication and Journalism of the most prestigious eight universities around the world in the field of Communication, according to the QS World University Index. The study, that analyses the objectives, competences, theme areas, type of subjects and the distribution on the academic itinerary after the analysis of the study programmes and of a total of 542 subjects, concludes that the curriculum must grant an outstanding relevance to the theoretical reflection, the study of the communicational grounds and processes, and specially the critical view towards new communicational scenarios.

Tejedor & Cervi (2017, pp. 1642-1643) insist on what their predecessors already anticipated: that it is essential that study programmes must combine the technical or instrumental use of the platforms and instruments, with the capacity to analyse, contextualise and reflect upon the whys and the essence of the changed introduced by technology. Therefore, the profile of the communicator must project "a professional able to understand and manage the transformations introduced by the digital culture. In addition to this, there is the need to know how to analyse and understand the bases of communicational processes at conceptual level and their evolution over time. Finally, it should be a professional able to produce informational contents of different nature and on different platforms". In short, the journalist must combine a humanist conception of his informative practice, grounded on a solid general education: that is able to investigate, evaluate and generate contents of quality.
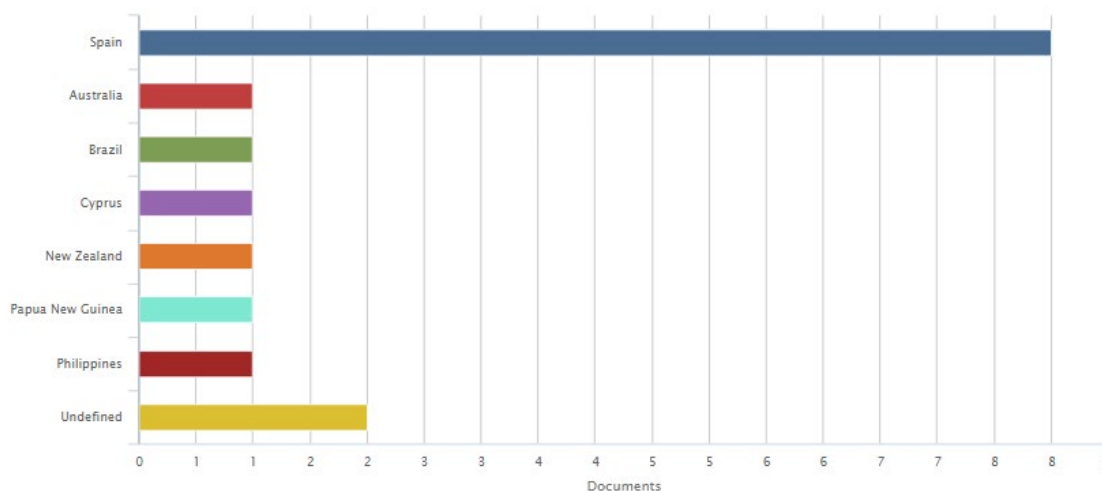
Figure 3: Studies about the education of digital competencies in the university (2004-2017).
Source: Scopus.

According to data from *Scopus*, Spain is the country with the greatest scientific production about digital competences in the education of journalists in the university, in the period ranging from 2004 to 2017.

4.4. Digital competences of the journalist in the social networks

A recurrent subject in the studies of *Scopus* and WOS about digital competences for journalists is the study related to the use of social networks and the pertinence of the acquisition of skills to potentiate its effect on audiences. Before this scenario, some researchers (García, 2009; Salaverría, 2010; Barrios-Rubio and Zambrano-Ayala, 2014) deem relevant to distinguish three types of core competences for the practice of digital journalism:
   a) Business-technological competence: professional performance in a space where multimedia media groups converge, and that promote the creation of products for multiple channels, platforms and media.
   b) Communicational competence of contents: an area that demands the mastering of languages and the semiotic references for the creation of communicational products, and that entail new editorial routines and material production for different formats.
   c) Professional-users competence: space that rethinks the professional practice of the journalist in the technological environment, mastering of digital tools and interaction with a public that every day demands a greater protagonism and influence on communicational products. The social networks are the great protagonists at this stage.

After 2012, the researches in Spain start to get interested in the management of social networks as essential media competence in the new profile of the journalist. Thus, González & Ortells (2012) carried out a study where in-depth interviews were conducted to journalists of Spanish media, encompassing three relevant questions: the management of interaction, the distribution of contents and the elaboration of informational products. The study concludes that a journalist who manages social networks for an informative media must have five specific competences:
   1. Know how to headline: to draw the interest of the audience and redirect it towards the corporate websites or the informational productions.
   2. Know what contents to select: since not all information, materials and resources are susceptible of being disseminated through social networks.

3. Know how to adapt contents to consume them through the network: a mere transposition of the mainstream informational pieces to the environment of the digital media would limit the full utilisation of the features inherent to platforms like *Twitter* or *Facebook*.
4. Know how to encourage interaction with the audience: to make the most of the capacity of social networks to generate conversations with users, which will entail obtaining new themes, points of view, informational testimonies, etc.
5. Know how to manage the relationship with the audience: it is not only necessary to know how to encourage dialogue, but also know how to guide it so that the audience does not feel they are not being considered.

These specific competencies complement with four general competences:
1. Planning and organisation: To know how the generate the correct transferring of contents towards social networks.
2. Initiative: To communicate contents with agility and promptness through these platforms, where immediacy is a priority.
3. Collaboration and cooperation: With other departments producing contents.
4. Engaged with quality: mandatory to distribute information with these standards in an environment marked by promptness or the contact with the user.

With its ups and downs, journalists and Spanish media have applied these principles during the past five years. However, today professional organisations and scholars coincide that informational companies have abused in the use of *clickbaits* on social networks, in order for the audience to growth at any cost to offer high levels of views, in terms of the advertising market (Nafría, 2017). This is evidenced in deceiving and sensationalist headlines like "What you have never seen before", that produce frustration in users and an increasing lack of credibility in media.

The number of users and the traffic generated by social networks has not been necessarily translated into an increase of subscriptions that allow a successful exchange of the editorial and business model, unlike what is happening in the United States, with *The New York Times* in the lead. Elsa González (2017), president of the Federation of Journalists Association of Spain (FAPE), states that it is demonstrated that social networks are a great communication vehicle, and have turned into essential sources of information in the current journalism, but also entail a risk, because they represent great ethical, deontological, juridical and journalistic challenges to confirm the veracity of the enormous volume of data distributed through these channels. "The networks connect us; the media inform us. The journalist must select, confirm, contextualise and compare, contrast sources, weigh consequences... and tell it properly. In the social networks, there is no responsibility about the veracity of information. But in Journalism, media are responsible", she says.

5. Conclusion and discussion

The study collects the evocation of digital competences in journalists and describes what are the competences necessary for the profession. From the analysis of the articles in *Web of Science* and *Scopus* we find that it gathers a variety of terms to the refer to the functions performed by the journalist in the online environment. Some concepts like "digital journalist, cyberjournalist, digital competences, digital skills" are used for the same purpose: to potentiate the resources of the web. This leads us to the following reflection: return to the retrojournalism, namely, to the classical values of the journalism.

The term digital competences or *digital skills* is not a concept that was born with the emergence of Internet. From the review of the scientific articles it is noted that the first articles were published at

the end of the fifties. Up until that moment, in studies there was not distinction between digital competences and technical skills. By the end of the 90s, the researchers focused on the description of the phenomenon of digital journalism in the academic field. In the studies published after the year 2000 a need to adapt the professional profiles in the Hispanic area was identified. In this case, the educational congresses were pioneer, specifically the Congress of Digital Journalism of Huesca stands out (Aragon). In this debate and reflection forum, where there is a first approach to the reflection upon the impact of the use of technology in the classical principles of journalism and there is warning about the need to reconfigure editotial offices. Later, other authors deemed relevant the teaching of the digital competence in the study programmes of the Graduate Studies of Journalism (Tejedor & Pérez-Tornero, 2006). Today, the journalistic profile most demanded by the journalism companies incorporates the education on social networks and *big data*.

From the analysis of the articles, it is deduced that the key of the practice of journalism on digital environments lies in combining the *retro* competences with the *neo* competences, as stated by Arrese (2015). Today, it is known for certain that the battle for the audiences in the future will develop in the field of mobile phone, with quality contents, marketing mix strategies, and the efficacious interaction between journalists, media and users, through social networks. All this requires a polyvalent education in the classical principles of the profession, media competences and the transversal competences of the disciplines related to journalism, both in Social Sciences as well as Humanities. And that is the great challenge universities, training reporters, professional journalists and journalistic companies must undertake. As maintained by López-García, Rodríguez-Vázquez & Pereira-Fariña (2017), the journalistic education must take two pathways: to reinforce the basic elements of the journalism and technological training. "The objective is to focus on the journalistic rather than the technological quality. The technological aspect alone, does not improve the competences and skills of the journalist".

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