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European
Public & Social
Innovation
Review

EUROPEAN PUBLIC & SOCIAL INNOVATION REVIEW

Vol 6, Issue 1, 2021

Contents

Research Article

Communications patterns and power dynamics in the digital public sphere: A case study of the conversation about Minimum Living Income on Twitter

Patrones de comunicación y dinámicas de poder en la esfera pública digital: Un estudio de caso de la conversación sobre el Ingreso Mínimo Vital en Twitter

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Abstract: In 2020, in the midst of the first wave of the pandemic, the Spanish Government approved the implementation of the Minimum Living Income, a non-contributory benefit under the Spanish social security system that guarantees a minimum income for those in need of one. Drawing on previous work of Stefania Vicari et al. (2018) about the use of political hashtag publics and counter-visuality on the Italian Twittersphere, we analysed patterns of communication among users on Twitter. Thus, this paper contributes to existing research on the deliberative process within the digital sphere, with a particular focus on power structures and communication patterns. Findings show that digital-born media, politicians and political parties play a central role in the discussion through mention and quoted tweets practices, but not in the production of new messages, while ordinary users are more likely to be retweeted. This would suggest a tendency towards retransmitting and disseminating content produced by ordinary users more than official sources.

Keywords: digital public sphere; Twitter; Minimum Living Income; power dynamics.

Resumen: En 2020, durante la primera ola de la pandemia, el Gobierno español aprobó la puesta en marcha del Ingreso Mínimo Vital, una prestación no contributiva del sistema de seguridad social español que garantiza unos ingresos mínimos a quienes lo necesiten. Basado en el trabajo previo desarrollado por Stefania Vicari et al. (2018) sobre el uso público de hashtags políticos y la contravisualidad en la Twitteresfera italiana, este artículo analiza los patrones de comunicación entre los usuarios de Twitter. Así, este trabajo contribuye a la investigación existente sobre el proceso deliberativo dentro de la esfera digital, con un enfoque particular en las estructuras de poder y los patrones de comunicación. Los resultados muestran que los medios de comunicación nacidos en el ámbito digital, los políticos y los partidos políticos desempeñan un papel central en el debate a través de las prácticas de mención y citación de tuits, pero no en la producción de nuevos mensajes, mientras que los usuarios ordinarios son más propensos a ser retuiteados. Esto sugeriría una tendencia a la retransmisión y difusión de contenidos producidos por usuarios ordinarios más que por fuentes oficiales.

Palabras clave: esfera pública digital; Twitter; Ingreso Mínimo Vital; dinámica de poder.

1. Introduction

The On 24 September 2019, the Spanish Prime Minister Pedro Sánchez called an election which was held on 10 November 2019. The Spanish Socialist Workers Party (PSOE, for their Spanish initials) won the election with 120 of the 350 seats, so it was forced to form a coalition government with other parties. Finally, on 13 January 2020, the first nationwide coalition government was formed in Spain since the Second Spanish Republic (1931–1939). The cabinet consisted of members of the Spanish Socialist Workers Party and Unidas Podemos as well as independents proposed by both parties. According to the Spanish Prime Minister, Pedro Sánchez, this coalition is 'the most progressive government' in Spanish history. In addition, the results of the election also left the most fragmented and polarised parliament in the recent history of the country. Shortly after the new government was formed, the first cases of coronavirus in Spain emerged in January, and finally, on 13 March 2020, Pedro Sánchez, the Spanish Prime Minister, announced a declaration of nationwide State of Alarm, and as a consequence, a strict lockdown was imposed on 14 March 2020. The State of Alarm ended on 21 June, but the number of cases increased again, and the second wave peaked in October 2020.

As a result of the effects of the pandemic and the measures taken in response to it, a generalised economic crisis started, and the rates of inequality and relative poverty in Spain rose (Chislett, 2020). To lessen the economic impact of the coronavirus disease 2019 (Covid-19) crisis, at the end of May 2020, in the midst of the first wave of the pandemic, the Spanish Council of Ministers approved the Royal Decree Law 20/2020 introducing the Minimum Living Income, a non-contributory benefit under the Spanish social security system that guarantees a minimum income for those who do not have it. According to the Ministry of Inclusion, Social Security and Migrations (2021), the Minimum Living Income 'is a benefit aimed at preventing the risk of poverty and social exclusion of people living alone or who are part of a cohabitation unit and lacking the basic economic resources to meet their basic needs'. In the Spanish Parliament, all political parties voted yes to the Minimum Living Income benefit, except the far-right party VOX, which abstained. According to the Spanish Government estimation, the Minimum Living Income will benefit some 850,000 households and 2.3 million people, of whom 1 million are in extreme poverty.

By applying our proposed approach to the exploration of Twitter network around the debate about the Minimum Living Income in Spain, this article focuses on communication patterns in the digital public sphere of Twitter and the conversation about the approval of the Minimum Living Income and its implementation. We consider this case study relevant because it offers the opportunity to investigate the communication patterns of a public issue with social and political impact under exceptional circumstances caused by the Covid-19 pandemic. Furthermore, as a previous study focus on the Finland case (Parth & Nyby, 2019), the use of the social media platforms to disseminate information about this type of policies is essential to the legitimisation of basic income. In that sense, this type of approach demonstrates the usefulness of data from platforms such as Twitter for social policies analysis.

To get an understanding of how users interact and how this interaction is articulated within this digital public sphere, we focused on Twitter. The prominent use of some functions of this social media platform (such as mention, retweet and quote tweet practices) would suggest some trends and tendencies to understand how the conversation in online networks is structured by different types of actors and the relations established by them. Use of the mention and quote tweet function indicates a greater tendency towards dialogue, while retweeting practices would suggest a trend towards disseminating content produced by others. Hence, to understand the interaction on Twitter about a social a political issue this article addressed the following research question: RQ- How was the information disseminated and what power relations were established through the different actors on Twitter regarding the debate on the approval of the Minimum Living Income in Spain?

2. Digital public sphere, power and platforms

The emergence of digital platforms and the changes in the mediatic system have made possible the establishment of a new scenario enabling new forms of communication (Pérez-Altable et al., 2020: 4). Thus, digital media play a central role in creating new ways to contribute to society through interaction among users across social media platforms (Marres, 2017: 7) when the implications of communication technologies within research fields are understood (Pavan, 2017: 62). In this sense, this study attempts to understand the implications of the use of social media in the process of establishing a specific topic inside the agenda. As Elena Pavan suggested (2014: 441), digital networks may be understood both as a metaphor and as empirical tools to explore the relations among actors. In this sense, the use of social media is understood in this proposal as a powerful tool to produce knowledge concerning the debate about the approval and the implementation of the Minimum Living Income benefit in Spain. For analysis of digital networks, it is important to understand the distinctive role that communication plays in these often densely interwoven networks of human actors, discourses and technologies. Beyond sharing information and sending messages, the organising properties of communication become prominent in digital networks (Bennet & Segerberg, 2013: 42).

This scenario implies a shift from passive spectators of traditional media to active users who not only consume content but also interact with it in different ways (Soler-Adillón, 2017: 2), leading to the formation of an active audience. According to Pere Masip, Carlos Ruíz-Caballero and Jaume Suau (2019), the concept of active audiences was first introduced to distinguish the new nature of audiences (Bruns & Highfield, 2016), perceived not only as active in the interpretation of journalistic texts and messages but also in the sense of being producers, disseminating content and holding public debates in online environments (Suau, 2015).

While the traditional media have adapted to the new media logic of the digital sphere (Pont-Sorribes et al., 2009), the new media are especially relevant because they enable conversations between politicians, the media and citizens (Suau-Gomilla et al., 2020: 210). In this new communicative landscape shaped by internet and social media platforms, the hybrid media system (Chadwick, 2013) is a central concept because it enables us to not only understand the changing media ecologies and the media constellation but also to understand how power works (Costera-Meijer et al., 2021: 11). According to Manuel Castells, 'power is the most fundamental process in society, since society is defined around values and institutions, and what is valued and institutionalised is defined by power relationships' (Castells, 2009: 10). For Castells, social networks that make use of global digital communication are the fundamental source of power and counter-power in contemporary society (Fuchs, 2009: 94). The question of power is essential since 'it draws attention to flux in between the interstitial and the liminal and it reveals how older and newer media logics in the field of news and media, and politics blend, overlap, intermesh and co-evolve' (Costera-Meijer et al., 2021: 14).

In line with this, one of the most interesting principles of network theory is the concept of 'power signature'. This term refers to the degree to which recognition (prestige and influence) is concentrated or dispersed among actors in a network. The basic idea is that there is a remarkable tendency among networks of very different types to link to, and thus concentrate, their associations around established high-capacity or high-popularity nodes (Buchanan, 2002). This tendency gives such networks a curious but robust 'scale-free' pattern of association linking bottom nodes to larger, or more widely recognised, actors (Barabási, 2009). Steep power law distribution (a small number of nodes getting most of the links and traffic) can be observed in many kinds of social and political networks, and the importance of these network 'heads' has been widely discussed; additionally, the concentration of followers around a few highly visible nodes is not only inevitable but explains their impact in terms of influence or prestige. Bennnet and Segerberg note that (2013: 154) the 'tails' of these steep power distributions can also serve important roles that may not be intuitive when one considers the bottom end of a power distribution. According to Malliaros et al. (2016), the problem of identifying nodes with potent

dispersive properties in networks can be further split in two subtopics: (1) identification of individual influential nodes, and (2) identification of a group of nodes that, by acting together, are able to maximise the total spread of influence (ibidem: 1). For instance, the tail of a network drives many new nodes to the top; thus, most influential nodes aggregate audiences among otherwise unstructured online populations.

According to Elena Pavan (2017: 9), to capture instead the social aspects of power in networks, which have to do with how users exploit social media features and affordances, the focus should move from the structural features of online networks to the type of communication and participation processes they host. Agreeing with Boyd et al. (2010: 1), social media such as Twitter has enabled communication to occur asynchronously and beyond geographic constraint, but it is bound by a reasonably well-defined group of participants in some limited shared social context. By the term 'social', following Nick Couldry (2013: 1), we mean the web of interrelationships and dependencies between human beings that are always, in part, relations of meaning. It is thus important to consider the question of the interaction between two dynamic processes: the process of users posting and sharing information, and the process of network evolution (Myers & Leskovec, 2014: 914). Interaction, here, is public in terms of being accessible by anyone navigating the page and aiming to reach large audiences (Coretti, 2014: 126). As Stefania Milan has pointed out (2015: 890), the fundamental change that social media introduce to the realm of the organised collective is at the material level. By materiality, she means both the online platforms people increasingly depend on for interpersonal communication and organising, but also the messages, images and data field emotions and relations brought to life on those platforms.

Finally, as Irene Costera-Meijer (2021: 15) has noted, in this hybrid media system we can find many different actors participating in a struggle to shape public discourse and define the news agenda; in that respect, the central objective is to determine 'how and why these actors behave as they do' and to identify the extent to which new norms are becoming embedded in the routine communicative practices in the digital public sphere.

3. Data and methods

The present analysis looks at networked debate and communication patterns starting from digital discussion unfolding within the space of Twitter (Radicioni et al., 2021: 2). This paper focus on a case study of a conversation on Twitter about the approval of the law of the Minimum Living Income benefit in Spain and its implementation. The extraction of Twitter data was performed by selecting the keywords 'ingreso mínimo vital' (Minimum Living Income in Spanish). Data were collected using the Twitter Search API across the period 1 November 2019 to 14 October 2020. This time interval covers the entire period of the electoral campaign of the Spanish general election on 10 November 2019, the voting day, the formation of the new government of coalition and the first and second wave of the Covid-19 pandemic as well as the approval and implementation of this benefit (Figure 1). Because we aimed to focus on Spanish users, we built our sample only with tweets published in Spanish language. The final dataset comprises 142,389 tweets.

To investigate the evolution of the conversation on Twitter about the Minimum Living Income, we identified the most relevant key dates and events that took place during the time that our study covers. Thus, we divided our sample into five different phases, according to these key dates (Table 1).

Figure 1. Longitudinal distribution of the dataset.
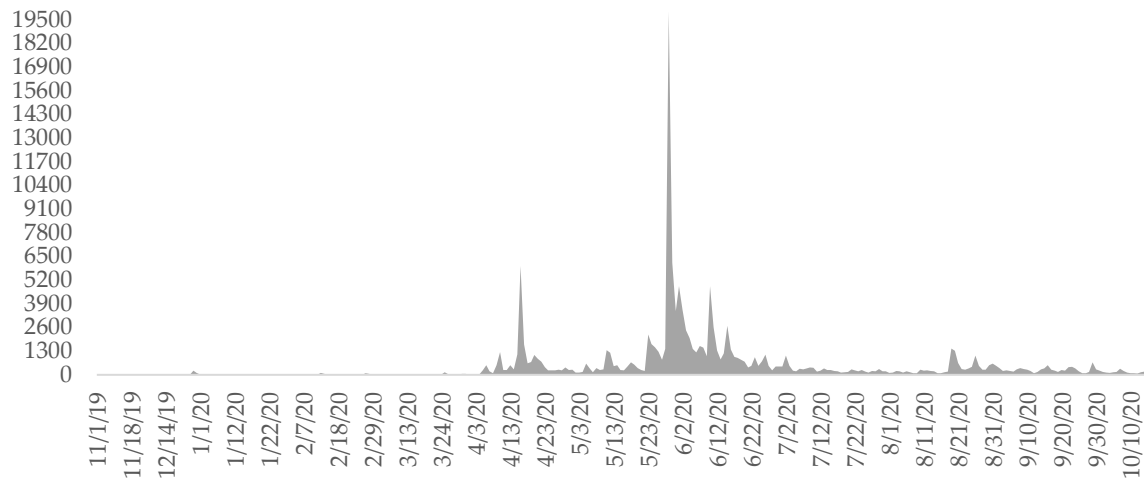
Source: Produced by the authors.

Table 1. Phases of the research analysis.

Phase	Time frame	Description of the most relevant events
1	01/11/2019-13/01/2019	Electoral Campaign, polling day and formation of the coalition government
2	14/01/2020-14/03/2020	First cases of coronavirus in Spain, declaration of the State of Alarm and start of the lockdown
3	14/03/2020-29/05/2020	Approbation of the Royal Decree Law introducing the Minimum Living Income
4	30/05/2020-21/06/2020	End of the State of Alarm and lockdown
5	22/06/2020-14/10/2020	Implementation of the Minimum Living Income benefit and second wave of Covid-19 in Spain.

Source: Produced by the authors.

First, Conversation in online networks is structured by different types of relations depending on the interactions established by users (Pavan, 2017). In this study we analysed the following different types of direct interactions between users:

- Mention: when a user posted a message that explicitly refers to one or more users. According to Courtenay Honey and Susan C. Herring (2009: 2), this use is a form of addressivity. 'Addressivity' can be defined as a user indicating an intended addressee by typing the person's name at the beginning of the message.
- Retweet: when a user reposted or forwarded another user's message. Retweeting effectively highlights the most relevant messages for users. Hence, each retweet substantially increases the range of the original tweet (Poell & Darmoni, 2012: 17).
- Quote tweet: a quote tweet is a retweet that has been made with a comment.

To provide a longitudinal exploration of the communication practices characterising the conversation on Twitter about the Minimum Living Income, we drew upon work by Vicari et al. (2018: 1243), and we analysed the conversation dynamics and identified (1) the number of tweets and unique users in each phase; (2) the percentages of mentions, retweets and quoted tweets in each phase and (3) the percentages of tweets that contain uniform resource locators (URLs) to external sources in each phase. Furthermore, we identified the most relevant users in the conversation during each phase of this study. Thus, adapting the coding scheme from Vicari et

al. (2018: 1240), we coded the top ten mentioned, retweeted and quoted users in each phase with at least three mentions, three retweets or the accounts that have been quoted at least three times, according to the categories of Table 2. For privacy and ethical reasons, Twitter accounts of ordinary users have been anonymised and replaced with pseudonyms (e.g. User_1).

Table 2. Categories of Twitter users.

Category	Example
Celebrity	@Paula_VazquezTV
Digital-born media	@eldiarioes
Experts	@JoaquinBoshGra
Institutional accounts	@desdelamoncloa
Journalist	@iescolar
Legacy media	@el_pais
Ordinary user	@User_1
Political party	@PSOE
Politician	@sanchezcastejon
Satirical accounts	@WillyTolerdoo
Social media	@YouTube

Source: Produced by the author.

Finally, we explored the effect of content types on user practices. More specifically, we analysed the retweeting practices depending on if the tweet was retweeted or not. These tweets were categorised on the basis of their content, that is, if the URL redirects to a page or if the URL belongs to a multimedia content (photo or video). Tweets without a URL in the message were categorised as 'text only'.

4. Minimum Living Income communication practices and power dynamics

On a platform such as Twitter, a prominent use of mention and quote tweets would suggest a greater tendency toward dialogue, while a prominence of retweets would suggest a trend towards retransmitting and disseminate content produced by others (Pavan, 2017: 9). In Table 3, we can see that the mentioning practice was the most common practice (45.73%) across the five different phases, followed by retweeting practices, with 36.26%. As the table shows, quote tweets constitute a residual form of interaction in this network, as they account for, on average, only 7.98% of the total.

Table 3. Conversation patterns.

Phase	Tweets	Mentions		Retweets		Quotes	
1	534	279	52.24%	205	38.38%	18	3.37%
2	464	207	44.61%	149	32.11%	19	4.09%
3	57.989	24.799	42.77%	22.150	38.20%	4.878	8.40%
4	48.104	21.319	44.32%	17.007	35.35%	4.152	8.63%
5	35.298	18.516	52.46%	12.122	34.34%	2.301	6.19%
Total	142.389	65.120	45.73%	51.633	36.26%	11.368	7.98%

Source: Produced by the authors.

Tables 4-8 present the Twitter handles of the top ten accounts for each phase with at least three mentions, retweets or quoted tweets. As the different tables illustrate, mentioning and quoting tweets practices share some similar patterns regarding the accounts with the most interactions. As we can see from Table 4, during the first phase of this study, mentioned and retweeted mechanisms were the most prominent. In this phase we can distinguish four types of users above the rest: accounts from media outlets, such as eldiarioes or _contrainfo, accounts from journalists, for example estherpalomera or iescolar, political parties official accounts, that is vox_es or PSOE and, finally, official accounts of politicians, as sanchezcastejon or luisacarcedo. The quoting mechanism, with only two accounts, is residual in this phase.

Table 4. Top users mentioned, retweeted and quoted during the Phase 1.

Phase 1

Mention				Retweet				Quoted			
Rank	User	N	Cum. %	Rank	User	N	Cum. %	Rank	User	N	Cum. %
1	eldiarioes	141	37.7	1	PSOE	1,349	17	1	eldiarioes	3	16.7
2	sanchezcastejon	45	49.7	2	eldiarioes	1,103	31.3		PSOE	3	33.3
3	PSOE	19	54.8	3	User_2	999	44.1				
4	ahorapodemos	6	56.4	4	sanchezcastejon	485	50.2				
5	_contrainfo	5	57.8	5	User_3	406	55.4				
6	User_1	4	58.8	6	PODEMOS	330	59.6				
	luisacarcedo	4	59.9	7	estherpalomera	155	61.6				
	unvelez	4	61	8	iescolar	169	63.8				
7	iescolar	3	61.8	9	carlossmato	158	65.8				
	vox_es	3	62.6	10	User_4	124	67.4				

Source: Produced by authors.

The second phase (Table 5) is characterized by the diversity of accounts that appear when we analyse the mentioning mechanism: media outlets, institutional accounts, politicians, accounts from social media platforms or political parties official accounts. We consider especially relevant the central role played by politicians. Focused on the analysis of these accounts, we can observe that all of them belong to members of the Spanish Government: from the personal account of the Prime Minister (sanchezcastejon) to the personal account of the Minister of Inclusion, Social Security and Migration (joseluisescriva). It appears also the personal account of the former vice president Pablo Iglesias and the personal account of the Minister of Labour and Social Economy, Yolanda Díaz. The mention of these accounts suggests a personalisation of politics, with the rise in popularity of politicians.

It is interesting to note that in this phase and specifically in the retweeting mechanism, institutional accounts emerge, for example DsocialesGob or desdelamoncloa. In that sense, the use of institutional accounts from social media platforms by the Spanish Government to disseminate information about the Living Minimum Income offer an essential opportunity to the legitimisation of this basic income.

Finally, quoting mechanism is also residual in this phase, as it happened in Phase 1.

Looking at the third phase (Table 6) it becomes evident that the increase in the total numbers of interactions both in the mentioning and retweeting mechanisms as well as the quoting practice. In this phase, the most mention accounts were, above all, official accounts from political parties and politicians. In that sense, we can note a shift from a more informative sources (phase 1 and 2) to political sources, which are prominent in this phase. In that sense, it is important to highlight that the media outlets were losing presence as central actors in the debate, with some exceptions when we analyse the quoting mechanism.

Table 5. Top users mentioned, retweeted and quoted during the Phase 2.

Phase 2

Mention				Retweet				Quoted			
Rank	User	N	Cum. %	Rank	User	N	Cum. %	Rank	User	N	Cum. %
1	publico_es	33	10.5	1	User_6	1,372	46.1	1	desdelamoncloa	3	16.8
2	joseluisescriva	21	17.2	2	desdelamoncloa	201	52.8		electo_mania	3	31.6
3	PabloIglesias	18	22.9	3	PSOE	192	59.3				
4	sanchezcastejon	17	28.3	4	electo_mania	97	62.5				
5	YouTube	10	31.5	5	User_7	67	64.8				
6	AIReF_es	8	34.1	6	DSocialesGob	64	66.9				
	inclusiongob	8	36.6	7	User_8	61	69				
	EP_Social	8	39.2	8	pmklose	54	70.8				
7	desdelamoncloa	6	41.1	9	nachoalvarez_	48	72.4				
	elEconomistaes	6	43	10	publico_es	42	73.8				
8	nachoalvarez_	5	44.6								
9	PSOE	4	45.9								
	VSocialGob	4	47.1								
	Yolanda_Diaz_	4	48.4								
10	20m	3	49.4								
	ABCeconomia	3	50.3								
	Diarioabierto	3	51.3								
	DsocialesGob	3	52.2								
	elconfidencial	3	53.2								
	ionebelarra	3	54.1								
	User_5	3	55.1								
	updayESP	3	56.1								
	wallstwolverine	3	57								

Source: Produced by authors.

Table 6. Top users mentioned, retweeted and quoted during the Phase 3.

Phase 3

Mention				Retweet				Quoted			
Rank	User	N	Cum. %	Rank	User	N	Cum. %	Rank	User	N	Cum. %
1	PabloIglesias	2,758	6.6	1	PabloIglesias	64,569	8.7	1	PabloIglesias	447	9.2
2	eldiarioes	1,384	9.9	2	PODEMOS	23,411	11.8	2	PODEMOS	179	12.8
3	sanchezcastejon	1,326	13	3	User_9	22,870	14.9	3	pnique	150	15.9
4	pnique	976	15.4	4	pnique	22,564	17.9	4	sanchezcastejon	138	18.7
5	PODEMOS	975	17.7	5	WillyTolerdoo	12,478	19.6	5	VSocialGob	113	21.1
6	PSOE	824	19.6	6	sanchezcastejon	10,151	21	6	PSOE	111	23.3
7	joseluisescriva	663	21.2	7	PSOE	9,311	22.2	7	eldiarioes	109	25.6
8	publico_es	658	22.8	8	gerardotc	8,130	23.3	8	publico_es	56	26.7
9	VsocialGob	381	23.7	9	AntonioMautor	6,989	24.3	9	elmundoes	54	27.8
10	el_pais	361	24.6	10	Cristina_H_	5,640	25		La_SER	54	28.9
								10	desdelamoncloa	49	29.9

Source: Produced by authors.

As we can see from the Table 7, the fourth phase continues with the trend present in the third phase: the majority of the accounts were from political parties and politicians, especially from members of the Spanish Governement. Thus, there is not presence of other Spanish politicians in the debate. Actually, only the far-right political party Vox appears thought the mentioning mechanism.

Table 7. Top users mentioned, retweeted and quoted during the Phase 4.

Phase 4

Mention				Retweet				Quoted			
Rank	User	N	Cum. %	Rank	User	N	Cum. %	Rank	User	N	Cum. %
1	PabloIglesias	1,094	3	1	pnique	18,457	3.9	1	pnique	127	3.1
2	sanchezcastejon	848	5.3	2	PabloIglesias	14,687	7	2	PabloIglesias	105	5.6
3	pnique	832	7.6	3	PODEMOS	9,208	8.9		VSocialGob	105	8.1
4	eldiarioes	689	9.5	4	User_10	9,105	10.9	3	el_pais	102	10.6
5	PSOE	547	11	5	PSOE	8,470	12.7	4	PSOE	77	12.4
6	PODEMOS	502	12.4	6	RubenSanchezTW	7,801	14.3	5	PODEMOS	76	14.3
7	joseluisescriva	395	13.5	7	User_11	7,548	15.9	6	User_6	74	16
8	vox_es	363	14.4	8	joseluisescriva	7,321	17.4		joseluisescriva	74	17.8
9	inclusiongob	350	15.4	9	EnricJuliana	6,615	18.8	7	eldiarioes	68	19.5
10	PaulaVazquezTV	301	16.2	10	JoaquimBoschGra	6,037	20.1		Santi_ABASCAL	68	21.1
								8	inclusiongob	66	22.7
									User_11	66	24.3
								9	evabelmonte	53	25.6
								10	User_12	52	26.8

Source: Produced by authors.

Finally, the fifth phase (Table 8), presents some divergences with respect to the previous phases. Mentioning practice presents accounts mainly from politicians and media outlets of different ideologies. For example, larazon_es is a conservative daily newspaper based in Madrid, while publico_es is a left-wing Spanish online newspaper, as well as elsaltodiario. Retweeting practice in this phase shows a peculiarity respect to the other phases. The majority of accounts retweed in this phase belonged to ordinary users, so it becomes evident that the conversation in this phase were dominant mainly by messages from ordinary users. At last, quoting mechanism shows a decrease with respect to the third and fourth phases, although it is still more prominent than in the phases 1 and 2.

**Table 8.** Top users mentioned, retweeted and quoted during the Phase 5.

Phase 5

Mention				Retweet				Quoted			
Rank	User	N	Cum. %	Rank	User	N	Cum. %	Rank	User	N	Cum. %
1	PabloIglesias	1,176	3.4	1	User_13	7,385	2.7	1	elmundoes	53	2.3
2	PODEMOS	710	5.5	2	pnique	5,974	4.3		pnique	53	4.6
3	sanchezcastejon	707	7.5	3	User_14	4,355	5.7	2	inclusiongob	37	6.2
4	pnique	446	8.8	4	User_15	3,945	7.1	3	voz_populi	31	7.6
5	publico_es	391	10	5	PODEMOS	3,856	8.3	4	PabloIglesias	30	8.9
6	larazon_es	306	10.9	6	gerardotc	3,295	9.4	5	elconfidencial	28	10.1
7	PSOE	259	11.6	7	User_16	3,003	10.4	6	User_20	27	11.3
8	elsaltodiario	255	12.3	8	User_17	2,906	11.5	7	abc_es	26	12.4
9	eldiarioand	210	13	9	User_18	2,849	12.4	8	nachoalvarez_	25	13.5
10	joseluisescriva	197	13.5	10	User_19	2,697	12.4	9	AdriLastra	23	14.5
									PODEMOS	23	15.5
									eldiarioes	23	16.5
									A3Noticias	23	17.5
								10	publico_es	21	18.4

Source: Produced by authors.

Along the same lines, Figure 2 provides an overall mapping of these accounts grouped by type of interaction referring to the percentage of times, each type of account, was mentioned, retweeted or quoted by other users. As shown in Figure 2, it is apparent that mention and retweet

mechanisms was the most stable mechanism used by the different actors, generating different dynamics of interaction among the five phases of this study. Quoting practices was used in a more homogeneous way through the different phases in which this study has been divided.

**Figure 2.** Accounts grouped by type of interaction.
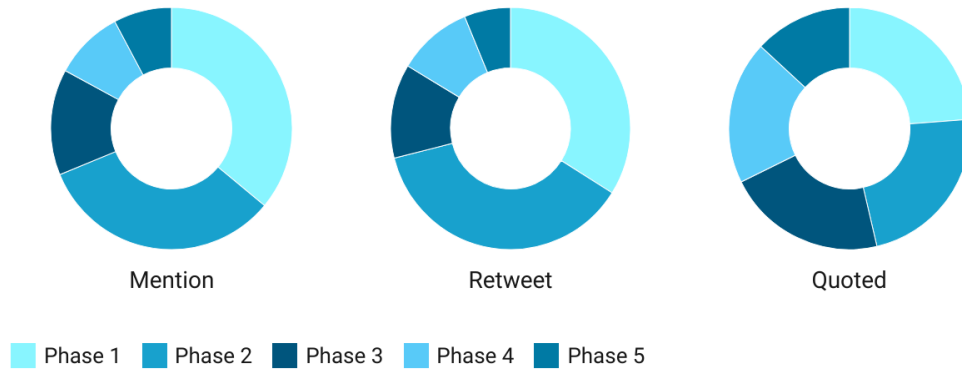
Source: Produced by authors.

Figure 3 show that there is a slight trend in the retweet practice for all phases. Users disseminate the content produce by other users using the retweet function to a greater extent. In that sense, retweeting practices were primarily used by spread content produced by ordinary users. In fact, the use of retweeted practices opened up opportunities for non-elite – namely, ordinary user – accounts to disseminate their content more widely and reach a wider audience. However, media outlets (digital-born media in particular), politicians and political parties are also relevant, specifically in the mention and quote tweet function.

Finally, the exploration of retweeting practices shows that the tweets with multimedia content (e.g., photos or videos) are more likely to be retweeted than other types of tweets containing URLs to external sources and only text. Looking at Figure 4 it becomes evident that tweets with multimedia content produced more engagement than tweets without multimedia content (namely, tweets with only text). Only in phase 5 were tweets containing only text the most shared by users. In other words, tweets with multimedia content are more spreadable (Jenkins et al., 2013) than tweets with only text. In most cases, the videos that users shared were GIFs. Thus, the concept of user-circulated content emerges, changes the focus from the user-generated content and helps us to gain a wider view of the digital culture characteristics, creating meaning within the network.

Figure 3. Top mention, retweet and quote practices grouped by type of account.
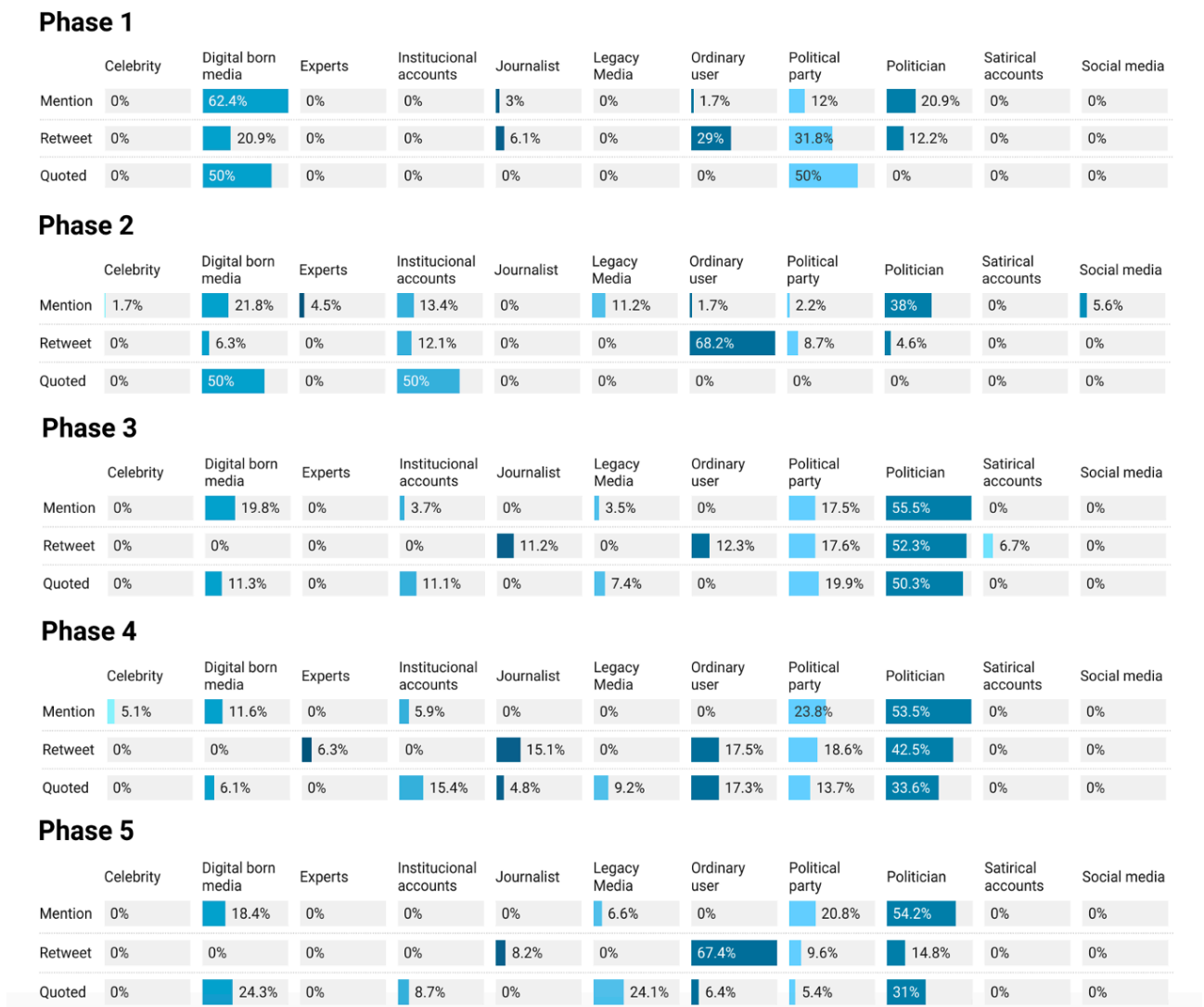
Source: Produced by authors.

Figure 4. Retweeting practices in relation to tweet form.
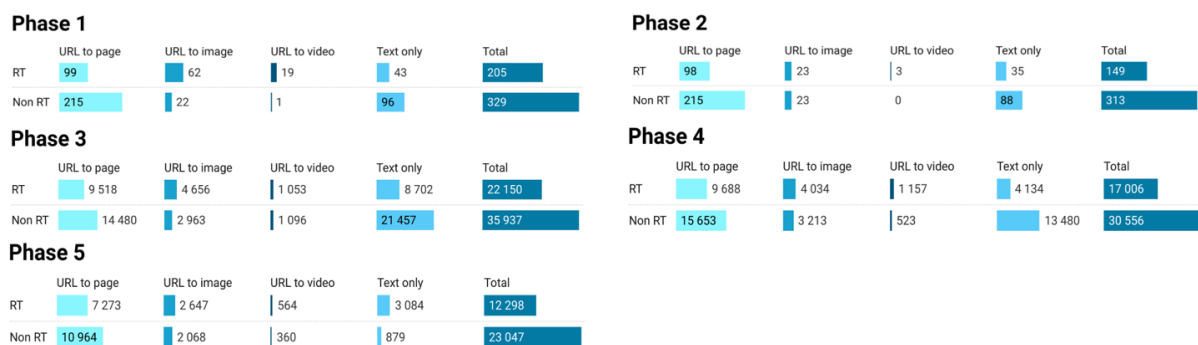
Source: Produced by the authors.

5. Conclusions

By analysing the conversation in the public digital sphere about a topic of public concern, i.e. the approval and implementation of the Minimum Living Income in Spain, we consider that this research contributes to the existing field of research on active audiences and the public digital sphere. In that sense, drawing on the previous work of Vicari et al. (2018), our research provides a multi-level methodological framework that looks at actors and communication practices of a public deliberation in the digital space over time.

Our results show that the use of Twitter functions and communication strategies enables the emergence of diverse actors among the different dynamics in the conversation. This study shows that digital-born media and politicians play a central role in mentioning and quoting tweet dynamics, while ordinary users are likely to be central to retweeting practices.

These finding suggest that digital-born media and politicians focus on personalised messages, in the sense that a prominent use of mention and quote tweets indicate a greater tendency towards dialogue (Pavan, 2017: 9). The medium with which users interact with the most through mentions is eldiario.es, an online newspaper founded in 2012. The political agenda of eldiario.es has been described as progressive. On the other hand, the most mentioned politicians were Pedro Sánchez (@sanchezcastejon), Prime Minister of Spain, Pablo Iglesias (@PabloIglesias), former Second Deputy Minister and Minister of Social Rights and 2030 Agenda at that time, and José Luís Escrivá (@joseluisescriva), Minister of Inclusion, Social Security and Migration of the Spanish Government. All of these politicians were members of the Spanish Government at that time. In that sense, as our findings show, the repeated mention of the personal accounts of politicians suggests a personalisation of politics, with the rise in popularity of politicians. On the contrary, there is not reference to any Spanish politicians from other parties. There is only brief mention of the far-right Spanish political party Vox during the fourth phase. Furthermore, the use of the social media platforms by institutional accounts to disseminate information about this type of policies, it is essential to the legitimisation of basic income. In that sense, this type of approach demonstrates the usefulness of data from platforms such as Twitter for social policies analysis and debate.

The use of retweet practices suggests a tendency towards disseminating and retransmitting content produced by others. Thus, the results reveal the emergence of dissemination of highly spreadable content by ordinary users using the retweet function. Our study, however, also shows that politicians and political parties are quite relevant, especially in the first, third and fourth phases. As mentioned in the literature review, what underlies the analysis of discursive dynamics on digital platforms such as Twitter is the notion of power dynamics in the hybrid media system, where old and new communication patterns coexist. In that sense, according to our findings, the democratising potential of Twitter should be called into question.

Attending to the analysis of retweeting practices in relation with the message form, in general, tweets with multimedia content are more spreadable (Jenkins et al., 2013) and, thus, more retweeted than tweets with only text. Specifically, tweets that shared photos and videos were retweeted more than others on average. In most cases, the videos that users shared were GIFs, so the visual content could be functional to express agreements or disagreements. Here, the concept of user-circulated content emerges, changes the focus from user-generated content and helps us to gain a wider view of the digital culture characteristics, creating meaning within the network.

In that sense, more research needs to focus on the visual content of tweets to understand the implications of the use of the multimedia content. What seems clear is that a message with multimedia content is more likely to be retweeted by other users.

Future research will focus on further explorations of discussion on Twitter and analysing the content of messages from a qualitative perspective to get a full understanding of not only the communicative practices from a structural perspective but also to investigate what users are saying, that is, the meaning of these relations. This qualitative approach would not necessarily

supplant the quantitative analysis but rather complement it because social networks are both structure and process at the same time.

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Research Article

Social participation in the media: The dialogue of digital journalists with audiences

La participación social en los medios de comunicación: El diálogo de los periodistas digitales con las audiencias

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Abstract: The emergence of social media altered the relation between journalism and the public in digital media and bequeathed the relationship a more active and collaborative role. As such, the general objective of this research is to characterise the dialogue between digital journalists and their audiences through social media and to describe how they perceive the consequences of this relationship. To this end, a survey was conducted with 73 digital journalists. The results display an ambivalent attitude on the part of the professionals regarding the use of social media as a tool for dialogue with their audiences. On one hand, they believe that using them is a priority need to maintain a fluid relationship with readers, although they mainly lean toward a majority one-way and limited use of them and believe that media managers have mainly perceived participation as a channel to garner audience loyalty and increase audiences.

Keywords: digital journalism; participation; interaction; audiences; social media.

Resumen: La aparición de las redes sociales alteró la relación entre el periodismo y el público en los medios digitales y le dio un papel más activo y colaborativo. Por ello, el objetivo general de esta investigación es caracterizar el diálogo entre los periodistas digitales y su público a través de las redes sociales y describir cómo perciben las consecuencias de esta relación. Para ello, se ha realizado una encuesta a 73 periodistas digitales. Los resultados muestran una actitud ambivalente por parte de los profesionales respecto al uso de las redes sociales como herramienta de diálogo con sus audiencias. Por un lado, consideran que su uso es una necesidad prioritaria para mantener una relación fluida con los lectores, aunque se inclinan mayoritariamente por un uso unidireccional y limitado de las mismas y creen que los responsables de los medios han percibido principalmente la participación como un canal para fidelizar y aumentar las audiencias.

Palabras clave: periodismo digital; participación; interacción; audiencias; redes sociales.

1. Introduction

Throughout most of the 20th century, audiences wielded a fairly limited influence on journalistic work (Singer & Reese, 1996). The public played a subordinate role in newsrooms' daily routines (Loosen & Schmidt, 2012), since journalists tended to not consider their opinion

when deciding what became news out of fear that this would affect journalistic quality (Gans, 1979). Journalists especially trusted in their own criteria, their boss' criteria, and their professional colleagues' criteria when selecting the stories to tell (Reinemann, 2008; Deuze, 2008), and listened to their audiences' opinions to a much lesser extent (Boczkowski, 2010).

The emergence of the Internet and social media altered the relation between journalism and the public in digital media and bequeathed the relationship a more active and collaborative role (Tandoc, 2014). The classic distinction between broadcasters and recipients gave way to what Loosen and Schmidt (2012) called "empowered networks," meaning audiences that produce and share information in an active and collaborative way with the aid of digital media.

Indeed, technology has facilitated new ways of interacting with content and with the public, and one of the most-used instruments to this end are social media (Mourao & Chen, 2020; Hedman, 2020). The uses of social media in journalism are many. Journalists use them to conduct routine tasks such as collect information, contact sources, and find ideas for new stories (Bruno, 2011; Paulussen & Harder, 2014; Weaver & Willnat, 2016; Rauchfleisch et al., 2017; Von-Nordheim et al., 2018), but also to connect to audiences and their professional colleagues (Powers & Vera-Zambrano, 2018) and quickly obtain information (Moon & Hadley, 2014). Social media are also useful to show public opinion (McGregor, 2019; Dubois et al., 2020), especially after mediatic events. Journalist use of social media is widespread, and they value them because they increase their professional resources (Hernández-Fuentes & Monnier, 2020; Jaraba et al., 2020).

Amongst the different platforms in existence, Twitter has been the focus of a large part of the research, given its close relationship to journalism (Lasorsa et al., 2012; Vis, 2013; Parmelee, 2013; Swasy, 2016; Molyneux et al., 2018), although the journalistic use of others has also been studied, such as Instagram (Larsson, 2018; Vázquez-Herrero et al., 2019; Hermida & Mellado, 2020) and YouTube (Paulussen & Harder, 2014; Al Nashmi et al., 2017; Djerf-Pierre et al., 2019; Lopezosa, Orduña & Pérez, 2020). The most popular social media platform, Facebook, has also drawn interest in academic research, both how journalists use it as a professional medium (Jordaan, 2013) and how it alters the way that users consume news (Somaiya, 2014; Brake, 2017; Carlson, 2018).

For journalists, the use of social media has been integrated into their professional practise (Beckers & Harder, 2016; Bossio, 2017), despite the persistent concern over the impact that the haste and logic in real time of social media platforms might have on the quality of journalistic coverage (Bruns & Nuernbergk, 2019).

Social media are an excellent opportunity for media professionals to self-promote since it makes it possible for them to grow their popularity and "personal brand" independently from the news organisation (Molyneux & Holton, 2015; Roberts & Emmons, 2016; Jukes, 2019); in fact, many media professionals are present on social media, and are even famous for using them (Ausserhofer & Maireder, 2013).

Social media not only provide great opportunities for journalism, acting as platforms for following, obtaining, and sharing news, and even to debate current news contents (Doval, 2014). They also create multiple changes, since younger audiences now use more online and social media as their main sources of information (Newman et al., 2017).

In this regard, it would appear logical to think that journalists go where their potential audiences are, in an attempt to connect to them (Nölleke et al., 2017) and to maintain direct contact in shared spaces (Singer, 2013). Thus, digital social media not only strengthen participation in the news process; they also provide new relationships that change author structures. For example, the relationship between the news producer and the consumer changes, questioning the journalist's institutional power as a professional who decides what is news-worthy or credible (Hermida, 2012). Social media systems like Twitter and Facebook have even been described as ambient journalism, where news becomes fragmented and omnipresent, constructed both by journalists and by audiences (Burns, 2010; Hermida, 2010).

The audience has been invited to collaborate with the media by preparing and contributing their own content (Guallar, 2007), although this new relationship between the media and audiences is not always viewed in a good light by journalists, even though it was driven by journalistic companies (Domingo et al., 2008; Singer, 2010). Some professionals are aware of the huge possibilities offered by social media, although some are also critical of any initiative that modifies their role as gatekeeper and that alters pre-existing routines and values (Wardle & Williams, 2010; Netzer et al., 2014).

Social media have often been viewed as a way to contest the hegemony of the media, insofar as they divert participation from platforms controlled by the media to environments outside them (Masip et al., 2015). However, at the same time, they arise as an interesting tool for the media, given that they provide for sharing content and fomenting interaction (Peña-Fernández et al., 2016).

In the past twenty years, the media system has grown much more complex. This is mainly a result of technological, organisational, professional, economic, social, and cultural factors, which has led to a reformulation of the role of informers themselves (Chadwick, 2013). Throughout this reconfiguration process, many other factors pushed a revision of traditional work models, including a crisis in the business model and a critical economic situation that caused a gradual decrease in income and reduced staff. With smaller and smaller audiences, uniformity of content and credibility were jeopardised (Suau, 2015).

Within this context, the relationship between journalism and its audience underwent a great transformation, which is no trivial matter insofar as the audience is mandatory for the existence of journalism. With the drain of readers and lost income, the media took different measures, most of them aimed at retaining audiences through entertainment, but few of them were designed to draw the audience by regaining their trust (Masip, 2016).

Some studies consider the relationship between journalists and the audience as positive and desirable (Klinger & Svensson, 2015). In the same fashion, it has been understood that the public wants to participate, wants to produce content, and wants to share it with journalists (Jenkins & Carpentier, 2013). However, different pieces of research have proven that greater opportunities for interaction do not necessarily translate to a greater commitment and identification of the audience with the media (Peters & Witschge, 2015). In the same fashion, other studies have shown that audiences are less active than imagined (Guallar et al., 2016), especially when participation requires a greater degree of commitment.

In this circumstance, it is relevant to know what the audience expects from its interaction with journalists, and vice-versa. Social media are becoming spaces where citizens with different worldviews can interact, and where information flows without the constraints of traditional media. In the new public digital sphere, platforms not only become a space for debate, but also facilitate reconfiguration of the media agenda (Goode, 2009). The audience takes on full prominence in the news process. Not as producer, but as gatekeeper, insofar as the users are the ones who determine interest in a news piece and the suitability of raising its visibility with a tweet or a like (Masip, 2016).

We must still elucidate whether journalists and users will be able to build a community (Picone et al., 2016), and if the former will be able to become catalysts for this public sphere of exchange and debate. Additionally, it is interesting to go further in depth as to what professionals expect from their interaction with the audience through social media. Based on this knowledge, it will be possible to establish a new relationship between the both of them, a relationship closer to what Lewis et al. (2013) call reciprocal journalism, meaning how journalists and audiences can develop reciprocal relationships that are beneficial to all.

Within this context, the general objective of this research is to characterise the relation between digital journalists and their audiences through social media and to describe how they perceive the consequences of this relationship. Based on this general objective, this research sets forth the following research questions:

- *RQ1:* What are the tools that digital journalists use to dialogue with their audiences?
- *RQ2:* What are the reasons for digital journalists to conduct this dialogue?
- *RQ3:* What are the benefits and risks perceived by professionals in establishing this relationship?

2. Methodology

This study includes the results from a survey conducted with 73 digital journalists who work in the Basque Country, both in digital editions of conventional media and in native digital media or managing social media. To this end, they were sent a closed questionnaire on work in the digital media that considered the most recent studies on the profession (Palacio-Llanos, 2018; Weaver et al., 2019).

The initial sample was drawn up based on the Basque Government's Open Communication Guide (https://gida.irekia.euskadi.eus). This guide includes a complete listing of Basque news media and their managers. The sample was completed with the collaboration of the Basque Journalists' Association (Pérez Dasilva et al., 2021), and sought balance between men and women. The number of digital journalists, including digital edition, native media, and social media workers, accounted for 14% of all journalists in any type of media.
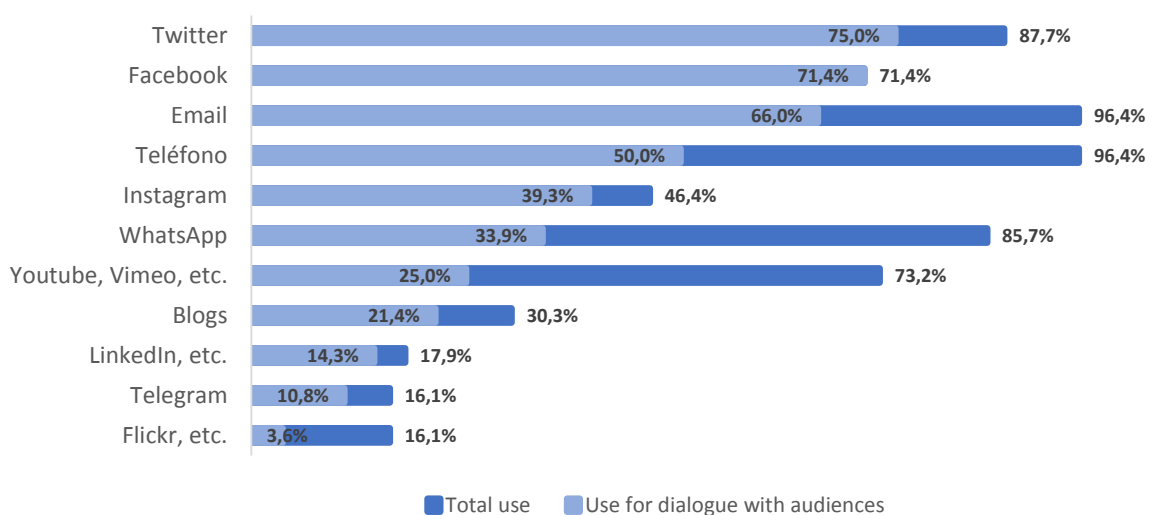
Surveys were conducted between 12 April and 24 May 2020. It should be noted that conducting these surveys was conditioned by the health crisis and confinement of the population declared by the Basque Government on 14 March to fight the pandemic. This was the reason why the methodology finally used was an online survey with telephone support.

3. Results

3.1. Tools for dialogue with audiences

If we analyse the tools most used by digital journalists in their daily work, the first two (telephone and email) probably do not differ much from those most used in many other professions (Figure 1). On the other hand, a particular trait that does stand out is the intensive use of social media and messenger services (Twitter, WhatsApp, YouTube, and Facebook) with almost identical intensity.

Figure 1. Digital work tools (total use/dialogue with audiences).

|	Use for dialogue with audiences	Total use
Twitter	75,0%	87,7%
Facebook	71,4%	71,4%
Email	66,0%	96,4%
Teléfono	50,0%	96,4%
Instagram	39,3%	46,4%
WhatsApp	33,9%	85,7%
Youtube, Vimeo, etc.	25,0%	73,2%
Blogs	21,4%	30,3%
LinkedIn, etc.	14,3%	17,9%
Telegram	10,8%	16,1%
Flickr, etc.	3,6%	16,1%

Source: Compiled by authors.

These four platforms and tools now definitely form a part of the essential repertoire of resources to practise the journalist profession online. These data are corroborated by the very opinion of journalists themselves, given that 83.5% of the surveyed professionals (n=61) believe that knowing how to work with social media is an essential skill for journalists today, and all of them stated that they had at least one active profile on social media. Regarding their use, 23.6% (n=13) state that they use social media only for professional reasons, as opposed to 72.7% (n=40) who blend personal with professional use.

If, on the other hand, we observe which of those tools they use for dialogue with audiences, the two main social media networks stand out above the rest, with Twitter in the lead (75%, n=42), followed very closely by Facebook (71.4%, n=40). The strong relationship between the percentage of general use and specific use for dialogue with audiences indicates that its heavy use amongst digital journalists indeed bears the purpose of getting close to readers, in addition to others.

If we delve a bit further into this aspect, the responses of digital journalists regarding reasons to use social media cast a bit more light (Figure 2). Indeed, a bit more than two out of every three professionals (n=58) state that the relationship with audiences is one of the reasons that they use social media.

Figure 2. What do you use social media for in your day-to-day work?
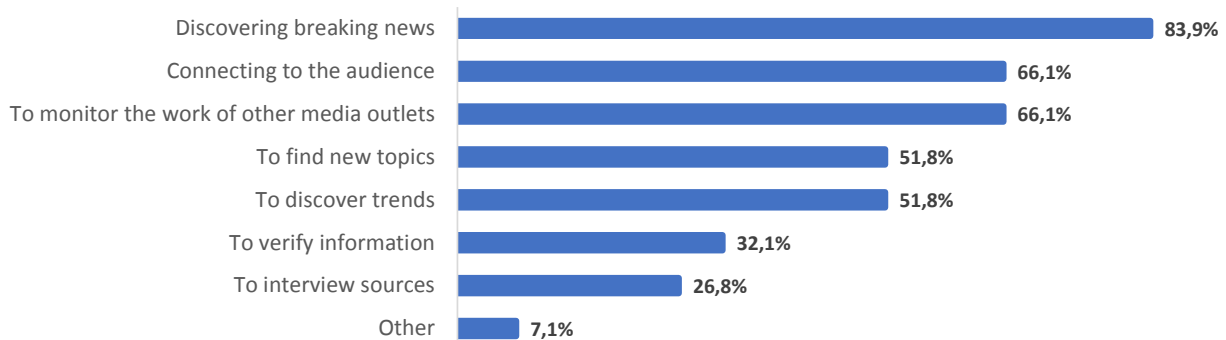
Source: Compiled by authors.

However, their use as a breaking news source (83.9%, n=56) and to follow news published by other media outlets (66.1%, n=58) bears equal or greater relevance for professionals. As such, social media are relevant tools for relationships with audiences, but their main use is for following breaking news.

At a third level, and with slightly less relevance, journalists state that they use social media as a source for ideas and to discover trends to create their news pieces. In this case, the professionals' opinion is a bit ambivalent, given that almost half of them (46.6%, n=34) believe that this practise jeopardises the quality of contents published by the media.
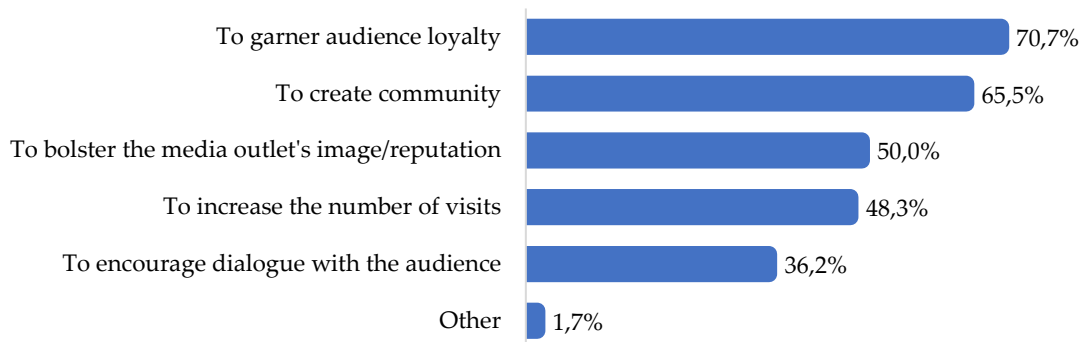
3.2. Reasons for dialogue with audiences

If we leave other kinds of functions behind and specifically focus on using social media to connect to audiences, the surveyed journalists state that the news media for which they work actively encourage their professionals to participate in this activity. 58.9% (n=43) of those surveyed confirm that their company encourages them to actively interact with their audience, and 43.8% confirm that the media outlet they work for has a protocol or specific guidelines (n=24) to do so. As such, dialogue with audiences is increasingly an institutionalised task, and not merely a personal option for journalists.

On the other hand, professionals generally have a critical view of this task, given that only a bit more than one out of every three journalists (Figure 3) believe that their media outlet's main reason is to truly dialogue with audiences (36.2%, n=21). In fact, most of those surveyed state that

these policies actually seek corporate objectives, such as gaining audience loyalty or creating a community around the media outlet, in addition to bolstering its image and increasing the number of visitors. As such, the objectives perceived by the professionals have more to do with corporate strengthening of the outlet than an actual desire for dialogue.

Figure 3. What do you think your media outlet's main reason is for interacting with the audience?
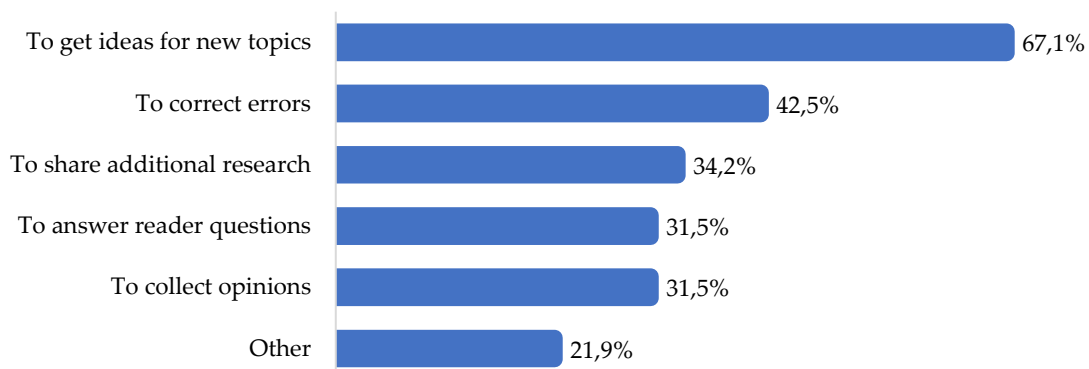

Source: Compiled by authors.

In general, journalists also display limited willingness to actively participate with audiences and prioritise interaction channels that are more one-way and not so much for dialogue. Thus, if we analyse how these social media are regularly used, practically all of them entail sporadic, one-off contact with the audience.

Firstly, the most customary activity on social media in their relationship with readers is to trawl for new topics to address, which is mentioned by two out of every three journalists (Figure 4). After this, frequencies are significantly reduced, and all uses mentioned display limited two-way communication, such as correcting errors or broadening content included in the news pieces. To the contrary, the two options with the greatest amount of dialogue, meaning answering reader questions or asking for their opinion, are used by a bit fewer than one out of every three digital journalists (31.5%, n=23).

Figure 4. In your direct relationship with audiences, what do you use social media for?

Source: Compiled by authors.

3.3. Perceived benefits and risks

As a whole, two out of every three digital journalists perceive that work with social media has increased how fast they must complete their work, which jeopardises the precision of their task (Figure 5). One out of every two professionals also believes that social media pose a threat to the quality of information, and a bit more than one out of every three even believe that social media place traditional journalism values in peril.

Some of the newest and most specific risks include 61.8% (n=34) believing that social media make them more exposed, which can lead to situations of readers pressuring or harassing them.

Regarding how to manage the relationship with readers, traditional professional values are once again dominant. In this vein, practically all of the surveyed parties (91.8%, n=67) believe that quality content helps to garner audience loyalty, as opposed to 35.6% (n=26) who believe that readers are lost because they are not addressing topics of their interest.

A large majority is also of the opinion that relationships with audiences are a need for media and, in turn, one of the greatest challenges they face today.

Figure 5. What are the threats posed by social media to the journalist profession?
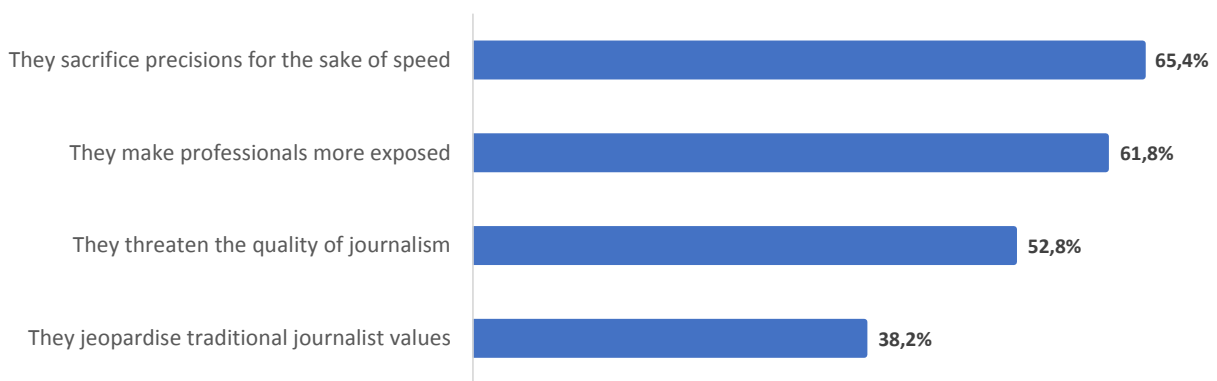
Source: Compiled by authors.

Additionally, a significant number of professionals acknowledge that they lack the skills necessary to connect to readers (45.2%, n=33), and only one out of every four states that this task takes time away from the work they must complete.

Figure 6. Rate how much you agree with the following statements regarding the relationship of media outlets with their audiences.
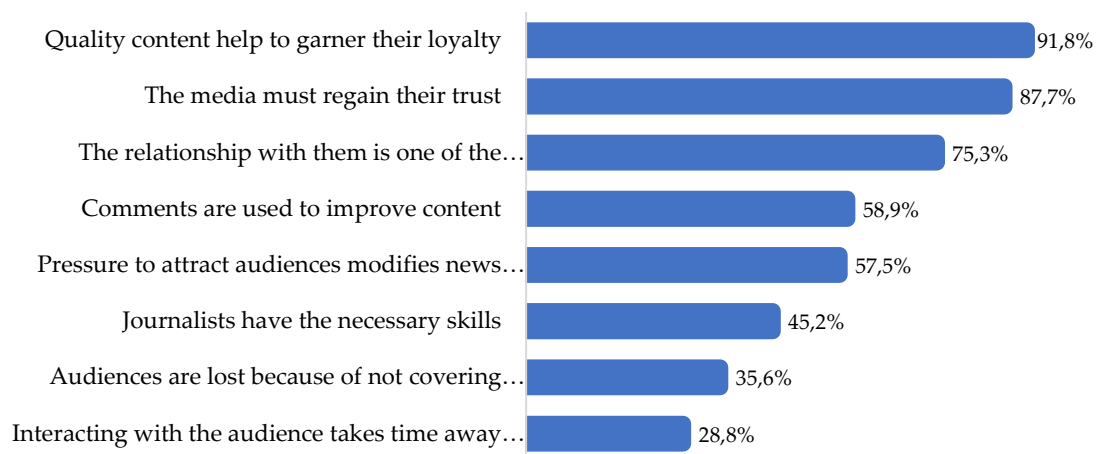
Source: Compiled by authors.

Lastly, only one out of every three individuals surveyed (32.9%, n=24) believes that audiences should more actively participate in creating news contents.

4. Discussion and conclusion

The study of digital journalist opinions on their relationship with audiences through social media provides an ambivalent view. On one hand, online media professionals in the Basque Country almost unanimously identify maintaining a fluid relationship with readers and regaining their trust as a priority need. In addition, social media platforms, particularly Twitter and Facebook, are the main tools for holding this dialogue. However, even though journalists acknowledge that their companies encourage them to actively interact with their readers, and even offer them guidelines to do so, they state that the reasons behind these policies are mainly commercial and corporate.

In this regard, the responses obtained highlight the idea that media employees believe that their managers view participation as a channel to generate website traffic, to make users invest more time on the media, and to obtain greater loyalty to the publication (Vujnovic, et al., 2010; Singer, et al., 2011; Manosevitch & Tenenboim, 2017).

The doubts in the corporate sphere also spread to professional practise. The study shows that digital journalists especially opt for mainly one-way, limited uses of existing communication channels. While problematic management of audience-generated content led to limitation on the spaces for participation in news media outlets, the force of social media naturally moved debate regarding media content and dialogue with audiences to these platforms (Masip et al., 2019). Social media are a suitable avenue to receive ideas and opinions and to find topics, but not to establish dialogue with readers (Suárez-Villegas, 2017). Journalists are willing to correct formal errors or data, but do not want interference in their editorial decisions (Pérez-Díaz et al., 2020).

Therefore, audience participation has not led to a change in journalists' view of their professional role. As Deuze and Witschge (2018) point out that it's a challenge to consider journalism as a networked practice while recognizing the permanence of meaning-giving structures, such as the newsroom. In this regard, basque digital journalists consider that the essence of journalistic work has not changed, and reassert the profession's traditional values (Örnebring, 2013; Andersson & Wiik, 2013). Only a small portion of the professionals surveyed believe that audiences should have a more active role in news creation, so we may consider that they perceive participation in the media as mainly complementary in nature (Neuberger & Nuernbergk, 2010; Vos & Ferrucci, 2018).

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Research Article

News consumption and COVID-19: Social perception

Consumo de noticias y COVID-19: Percepción social

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Abstract: On 14 March 2020, the Spanish Government declared a state of alert for the first time since the reinstatement of democracy, confining millions of people to their homes in effort to combat the COVID-19 pandemic. Amid emergency situations such as this, people need to be informed (Seeger et al., 2003). In light of this demand for information, the media responded by heightening the attention afforded to the pandemic and its news coverage, a phenomenon which has occurred repeatedly in similar situations (Ducharme, 2020; Pieri, 2018). Based on a survey of over 2,000 Catalan citizens during the period of lockdown, the main aim of this article is to analyse how the pandemic changed their information habits, gauge their perception of the media's coverage and determine whether this coverage produced information overload. The results show an upsurge in media consumption as well as information overload among virtually half the population. This generates a paradox: despite the increased consumption of information, the media did not help to improve people's understanding of the pandemic, but instead resulted in information fatigue, thus hindering comprehension.

Keywords: media consumption; news coverage; information overload; Catalonia; COVID-19.

Resumen: El 14 de marzo de 2020, el Gobierno español decretó el estado de alarma por primera vez en democracia, que confinó en sus hogares a millones de personas para combatir la pandemia de la COVID-19. Ante situaciones de alarma de este tipo, los ciudadanos necesitan estar informados (Seeger et al., 2003). Los medios responden a esa exigencia de información con un incremento de la atención mediática sobre la pandemia y de su cobertura informativa, fenómeno que se repite como constante en situaciones análogas (Ducharme, 2020; Pieri, 2018). A partir de una encuesta a más de 2000 ciudadanos de Catalunya durante el confinamiento, el presente artículo tiene como objetivos principales analizar si la pandemia modificó sus hábitos informativos, como percibieron la cobertura realizada por los medios y si se produjo sobrecarga informativa. Los resultados muestran un incremento del consumo informativo, así como sobrecarga informativa en casi la mitad de los ciudadanos. Ello genera una paradoja, a pesar de incrementar el consumo informativo, los medios no contribuyeron a mejorar su comprensión de la pandemia sino a generar una fatiga informativa que dificultó esa comprensión.

Palabras clave: consumo informativo; cobertura informativa; sobrecarga informativa; Catalunya; COVID-19.

1. Consuming information behind closed doors

On 14 March 2020, the Spanish Government declared a state of alert for the first time since the reinstatement of democracy, confining millions of people to their homes in effort to combat the COVID-19 pandemic (Royal Decree 463/2020, of 14 March 2020) (Government of Spain, 2020). At that time, Spain had one of the highest death rates per capita in Europe (Johns Hopkins University, 2020). In a context of uncertainty and isolation, such as that formed at that time, people not only turn to the media for information, but also to social media, which represents an important complement due, for instance, to the first-person accounts it provides from people at the scene of the events (Vis, 2009; Muralidharan et al., 2011; Watson, 2015).

There is extensive literature about information in emergency contexts such as the current pandemic or natural disasters, terrorist actions or accidents resulting in numerous casualties. They are events that sow fear and uncertainty among the population, who demand and require up-to-date, immediate and accurate information about what is going on (Seeger et al., 2003). In such situations, confidence in the media increases (Ball-Rokeach & DeFleur, 1976). Particularly in health crises, traditional media outlets are the ones that frame public debate (Scoones, 2010; Pieri, 2018) while there is also an increased need to consume news about the disease (Davis & French, 2008).

In this context, it is easier for both citizens and the media to give in to feelings of fear and emotional responses, particularly at the outbreak of a pandemic, when science has yet to provide the necessary answers (Covello, 2003). These feelings are further aggravated by the media's often sensationalist coverage, which may spark greater alarm (Mandeville et al., 2013; Vasterman & Ruigrok, 2013; Nerlich & Koteyko, 2012). This type of coverage distorts the facts, as it provides contradictory information and even counterproductive recommendations, placing emphasis on the risk and uncertainty. Such was the case in previous health crises, such as the Ebola (Boehlert, 2014; Kilgo et al., 2019), mad cow disease (Washer, 2006) and SARS (Lewinson, 2008) outbreaks.

Another characteristic of the media's coverage of this type of situation is information overload, which may lead to the discontinuation of information seeking (Swar et al., 2017), the use of information sources (Zhang et al., 2020) and, lastly, information avoidance (Hanif et al., 2021; Chae, 2016).

Taking these circumstances into account, this article looks to shed further light on the relationship between Catalan citizens and information in such an extraordinary context. Unlike previous health crises, the COVID-19 pandemic entailed not only coping with an unknown and lethal disease, but also doing so amid such exceptional and unprecedented circumstances as the lockdown.

2. A disease named infodemic

The Prior to declaring the pandemic, in February 2020, the World Health Organisation (WHO) flagged concerns about the dangers of the so-called "infodemic" (WHO, 2020). Such was the term chosen to denote the over-abundance of information, albeit rigorous and true or false and confusing, which makes it difficult to discern reliable sources. The events proved it right shortly thereafter. The WHO was well aware that information overload could pose a barrier to understanding the pandemic and compromise people's ability to combat it. The term "information overload" was first used by the futurist author Alvin Toffler, in his work Future Shock (1970), to describe the connection between excessive information and cognitive and sensory overload. In the field of psychology, "overload" is defined as the state in which the input of information exceeds the capacity to process it (Eppler & Mengis, 2004). In this regard, people have limited cognitive resources for processing information (Lang, 2000). Information overload denotes the ineffective processing of information and leads to confusion and mental stress. According to Schmitt, Debbelt and Schneider (2018), information overload is not simply the

exposure of an individual to an excessive amount of information in any context, but also implies that the individual suffers certain adverse effects as a consequence.

To Eppler (2015), information overload gives rise to two problems. On the one hand, it tests people's capacity to correctly process information while, on the other, making it difficult for them to pay attention to the correct and necessary information on which they must rely to make decisions and further their knowledge. In light of this situation, shortcuts are taken to purge information of excessive complexity, one of which is to filter out facts that run counter to one's own views. According to this author, other shortcuts include directing attention towards attractive rather than influential information, or giving greater consideration to the latest bits of information consumed, as opposed to all the information processed beforehand.

Schneider (1987) added another important element. Overload is not only dependent on the amount of information about a particular issue, but on the nature of the information itself (i.e. on its level of uncertainty, ambiguity, complexity and intensity). Factors noted in the information concerning the COVID-19 disease, particularly in the early stages, when our knowledge of how the virus acted, how it spread and how it could be effectively controlled was largely non-existent. Information overload generates a paradox: although, from a normative and democratic perspective, information is a desirable and sought-after asset, overexposure to news may lead citizens to feel psychologically overwhelmed. This sense of being saturated by news has been observed in other crises. Such was the case during the SARS pandemic of 2003 (Abraham, 2005). Other investigations on the news coverage of AIDS have revealed another type of fatigue, that on the part of the media organisations themselves (Brodie et al., 2004).

York (2013) analysed the influence of the overall level of exposure to news and concluded that those individuals who use media more intensely have a greater chance of experiencing information overload than those who use media less intensely. Moreover, that accumulated exposure to information through different sources, such as print media, television, radio and the Internet, heightens the probability of experiencing overload. People who are confronted with the diversity of online information experience greater stress when seriously seeking information with which to interact with others, albeit it in an argument or other everyday situations. They are therefore more prone to becoming cognitively overloaded by information (Eppler & Mengis, 2004). Excessive information may have counterproductive effects. In this regard, certain studies have found that greater media exposure leads to an increased sense of anxiety among citizens. This was observed in the United States during the Ebola crisis of 2014, despite the low prevalence of the disease in that country (Thompson et al., 2017), and is now starting to be seen with the coronavirus (Garfin et al., 2020). In their study on news consumption and risk perception concerning COVID-19, Mora-Rodríguez and Melero-López (2021) observed a greater perception of risk among individuals, with a higher exposure to news about the pandemic.

According to Hong and Kim (2020), when people surpass their capacity to process information, they may experience adverse effects such as information avoidance, confusion when making decisions and non-compliance with recommendations from authorities. The authors in their study found that, due to fatigue resulting from information on the COVID-19 virus, many people had grown tired of engaging in preventive behaviours and had become insensitive to recommendations related to the pandemic. They believe that, to reduce information overload, communicators and health professionals must make efforts to present concise content and not overly repeat information.

Information overload is obviously contingent on two factors. On the one hand, a significant increase in information in a certain context and, on the other, increased news consumption in response to a need generated by an emergency situation. Two conditions that existed during the period analysed.

The media coverage of the coronavirus has been completely different to that afforded to any other disease. Consider this: in January 2020, the number of articles published on the coronavirus was 23 times higher than the number of articles published on Ebola in August 2018, the first

month of the Ebola outbreak in Africa (Ducharme, 2020). In Spain, as of 10 April 2020, 432,058 news articles about the pandemic had been published (Lázaro-Rodríguez & Herrera-Viedma, 2020). Nevertheless, not only was there an upsurge in the amount of information produced, but also in the importance the media ascribed to it. Cantero-de Julián et al. (2020) analysed 630 front pages from seven general Spanish newspapers (El País, El Mundo, La Razón, La Vanguardia, El Periódico and El Correo) during the first quarter of 2020, which spanned the period between the detection of numerous cases of the coronavirus in Wuhan and the disease's initial foray into Europe through Italy to the appearance of the first cases in Spain. The study demonstrates a progressive increase in the presence of the subject on the front pages as the threat to health became greater. In March, the pandemic changed the make-up of the front pages, with upwards of 10 articles on the front pages of both El Mundo and El País. On 22 March, the newspaper El Mundo ran as many as 20 news stories on the subject. In just one week (the fifth week of the lockdown), the number of press readers swelled by one million people (Asociación de la Prensa de Madrid [APM], 2020), although the initial signs of information saturation could already be seen.

Alongside this increase in media coverage and the production of information, various studies also confirm an increase in people's media consumption. In Catalonia, in April 2020, the amount of television watched reached record levels, with people logging an average of 4 hours and 28 minutes, one hour and one minute more than before the lockdown. This represents an increase of 39% over February of the same year. The news programmes from the regional channel TV3 were the most watched in the month of April, with an average of 700,000 viewers and a share of 27.5%. Following the record figures of the first weeks of the lockdown, all news programmes lost viewers during the month of April, although the number of people watching the news remained much higher than prior to the state of alert (Consell de L'Audiovisual de Catalunya [CAC], 2002).

Based on the observations made in previous studies, this article pursued three research objectives:

O1: To determine whether the coronavirus health crisis and subsequent lockdown affected the rate of media consumption of Catalan citizens.

O2: To find out whether Catalan citizens perceived excessive coverage of the pandemic on the part of the media and whether this hindered their understanding of the disease.

O3: To gauge people's opinion about the coverage provided by the media.

Unlike other similar investigations, most of which have focused primarily on analysing the content of the media coverage, this study shifts its attention to people's perception. The authors of this study were forced to conduct the research under strict lockdown conditions.

3. Methodology

To achieve the above-mentioned objectives, a descriptive exploratory study was performed using anonymous self-administered online surveys and a sampling method similar to that known as snowball sampling. The fieldwork was conducted between 3 and 10 April 2020, i.e. during the period of lockdown imposed and subsequently extended by the Spanish Government. The sampling method used has certain limitations, such as the lack of control over how the sample group is constituted and sampling bias. To minimise these drawbacks, individuals were selected at random after ensuring that all subgroups (age, sex) were represented in the initial network of contacts. To minimise the under-representation of low online consumption groups, the survey was initially distributed via WhatsApp, the most popular instant messaging app in Spain (Newman et al., 2019). Ultimately, a valid sample group of 2,062 individuals was created.

To conduct the research, we drew up a questionnaire comprised of 23 questions grouped into 5 main categories: socio-demographic data, news consumption during lockdown, use of

social media during lockdown, confidence in the media and misinformation and fake news. Most questions were single response and multiple choice (19), with only one multiple response question (1). Questions in which participants were asked to provide their opinion of the media coverage and their relationship with the information (2) were based on the Likert scale (1-5).

4. Results

In line with earlier investigations, which showed that, in the face of highly disruptive events, citizens tend to consume more information, the data acquired confirm that, following the declaration of the state of alert and the ensuing lockdown, 70.5% of citizens consumed information more frequently than before the pandemic (Table 1). More specifically, 44.2% did so somewhat more, while 26.3% did so much more. In terms of gender, women were found to consume more information than men. Such is the case both among respondents who declared that they consumed "somewhat more" information (45% to 43.1%) and those who consumed "much more" information (29% to 22.5%). Nonetheless, the differences between the genders are not statistically significant.

Table 1. Rate of media consumption before and during the pandemic.

| Following the declaration of the state of alert due to the coronavirus pandemic, do you consume information more frequently than before?	%	Men (%)	Women (%)
Yes, much more	26.27	22.53	29.00
Yes, somewhat more	44.21	43.10	45.01
No, less	9.60	9.89	9.39
The same	19.87	24.48	16.51
DK/NO	0.5	0.00	0.08
	100	100	100

Source: Compiled by authors.

The increased interest in information translates into a higher rate of information consumption. If, prior to lockdown, 28% of citizens consumed information 3 or more times a day, following the lockdown, this percentage rose to 52%. Furthermore, the rate of information consumption during lockdown increased more among women than among men ($X2$ (1, N = 1557) = 10.16 p < 0.01). This confirms the trend observed in previous health crises, in which citizens turn to the media in hopes that it might assuage their concerns through up-to-date and accurate information.

Digital media outlets stand as the first option for information (35.5%), followed by television news programmes (33.4%) and social media and instant messaging apps (13.1%). However, if we take into account the first three options, television news programmes top the ranking as the preferred means of information (Figure 1). The results show that the state of alert did not alter people's preferences. Television continues to be the most popular medium for information, both in normal contexts and in that experienced during lockdown (Newman et al., 2020), even though digital media sources are the first option. This is likely due to digital media's capacity to remain

constantly up-to-date and the fact that it may be consumed in a non-linear fashion, unlike television.

Figure 1. Preferred means of information during lockdown.
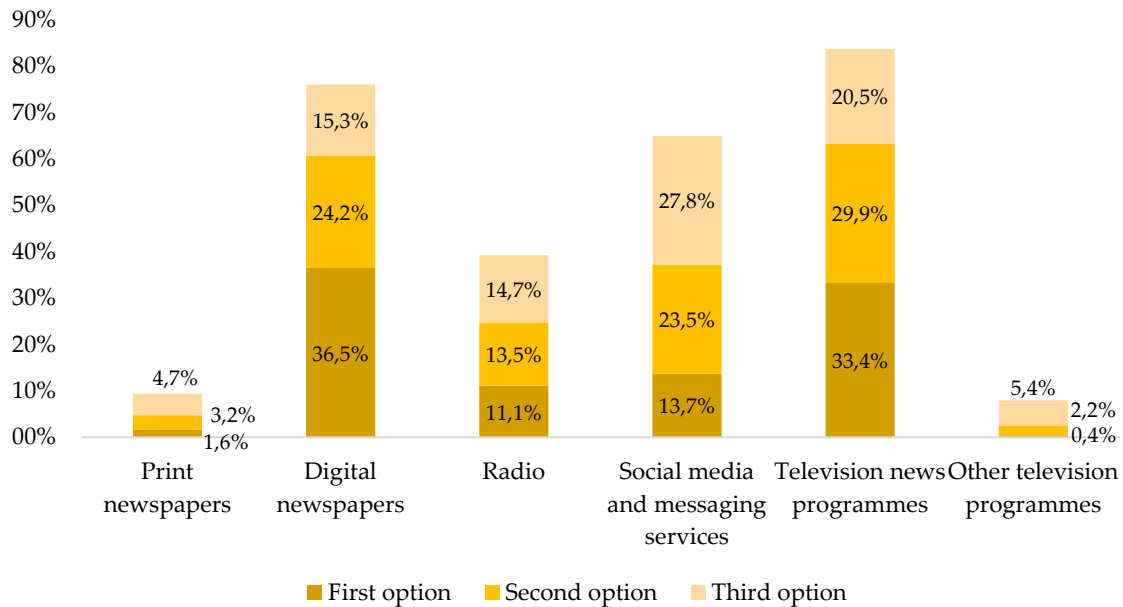
Source: Compiled by authors.

As regards the study's second objective, to find out whether the citizens perceived excessive information, this investigation confirmed the trend identified in earlier crises. The questionnaire included a series of statements in which respondents were asked to gauge their degree of agreement or disagreement based on a Likert scale, with 1 being strongly disagree, 2 disagree, 3 neither agree nor disagree, 4 agree and 5 strongly agree. Based on the responses, both the averages and rate of 4+5 responses to 1+2 responses were analysed (Table 2).

While it is clear that citizens have a need for information, a certain amount of fatigue can also be observed. Such was the opinion of almost half the population (48.2%). Fatigue is associated with the frequency with which information is consumed. Thus, users who consume information on a daily basis express greater fatigue with regard to the amount of information provided by the media on the pandemic than those who consume information less frequently ($X2$ (2, N = 1543) = 19.1158, p < 0.01).

Information fatigue has two consequences. One group, which, though not the majority, represents 40.4% of those included in the sample, claims to prefer not to follow the news in order to avoid the stress this places on them, as opposed to the 38.3% who do not agree. Between both groups, 21.35% express an equidistant position. The average value is 3.01 ($\overline{X}$=3.01 σ=1.19), while women are more inclined than men to share this perspective ($X2$ (2, N = 1621) = 16.5925, p < 0.01).

On the other hand, the sheer amount of information provided made it difficult to adequately follow the pandemic according to 38.42% of citizens, with an average value of 3.04 ($\overline{X}$=3.04 σ=1.06). In this regard, there were no statistically significant differences between the sexes.

Table 2. Perception on the relationship of citizens with information.

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)	$\overline{X}$	Standard deviation
I am tired of the coronavirus being the main topic in the media	5.68%	21.35%	24.79%	30.86%	17.32%	3.33	1.16
Men	5.75%	20.14%	26.58%	28.08%	19.45%	3.35	1.17
Women	5.62%	22.23%	23.49%	32.89%	15.77%	3.31	1.15
I prefer not to follow news on this topic to keep from becoming stressed/anxious	10.77%	27.51%	21.35%	30.37%	10.00%	3.01	1.19
Men	13.69%	28.19%	23.48%	26.93%	7.71%	2.87	1.18
Women	8.64%	27.01%	19.80%	32.89%	11.66%	3.12	1.18
The excessive information on the coronavirus makes it difficult to follow the pandemic	6.65%	27.85%	27.07%	31.68%	6.74%	3.04	1.06
Men	6.79%	27.50%	25.89%	31.76%	8.06%	3.07	1.09
Women	6.54%	28.10%	27.94%	31.63%	5.79%	3.02	1.04

Source: Compiled by authors.

The third objective entailed analysing the coverage afforded by the media during the initial weeks of lockdown. In this regard, the perception of citizens is, on the whole, negative. People remain sceptical of the information the media provides. Although there is a virtual tie between those who approve and those who disapprove of the quality of the information received ($\overline{X}$=2.99 σ=0.06), when it comes to other indicators, the perception is much more critical (Table 3). Most believe that the media provides too much information ($\overline{X}$=3.44 σ=1.11). 54.5% agree (4+5) with this assessment, while 22.5% (1+2) disagree. The excess information is one of the factors that contribute to the "infodemic" reported by the WHO, one of the dangers of crisis situations.

Similar to what was detected in previous health crises, citizens believe that the manner in which the media reports the news is influenced by their ideology and penchant for spectacularisation. The influence of ideology on the news coverage of health crises generates uncertainty among the population (Cornia et al., 2015) and compounds this sense of "infodemic",

as citizens get the feeling that, instead of reporting accurately, media outlets report in accordance with their agendas or political sympathies. In Spain, people have been particularly critical of the influence of editorial slants on coverage. When asked whether ideology had an impact on the way the media handled the coronavirus pandemic, on a scale of 1 to 5, the average response was above 4 ($\overline{X}$=4.06 σ=0.91). 79.3% agree with this statement, as opposed to the 6.9% who disagree (1+2). Men have a greater tendency than women to associate ideology and coverage ($X2$ (1, N = 1775) = 11.42, p < 0.01).

Most respondents also condemned the propensity for spectacularisation in the coverage of the pandemic, with the danger this poses to creating social alarm ($\overline{X}$=3.25 σ=1.10) 31.28% share this opinion, compared to the 18.98% who disagree with this perception. Men are also more critical than women of the coverage provided (($X2$ (4, N = 1429) = 11042, p < 0.01).

Table 3. Perception of the media coverage.

	Strongly disagree (1)	Disagree (2)	Neither agree nor disagree (3)	Agree (4)	Strongly agree (5)	$\overline{X}$	Standard deviation
In general, the media is reporting on the coronavirus pandemic correctly	6.11%	26.29%	32.49%	32.83%	2.28%	2.99	0.96
Men	6.67%	29.43%	31.84%	29.54%	2.53%	2.92	0.98
Women	5.70%	23.99%	32.97%	35.23%	2.10%	3.04	0.95
In general, media outlets are providing too much information about the coronavirus pandemic	4.80%	17.65%	23.08%	37.78%	16.68%	3.44	1.11
Men	5.52%	17.59%	20.80%	38.28%	17.82%	3.45	1.14
Women	4.28%	17.70%	24.75%	37.42%	15.86%	3.43	1.08
In general, the media's editorial slants (ideologies) impact how it reports on the coronavirus pandemic	1.41%	5.43%	13.88%	43.91%	35.37%	4.06	0.91
Men	1.27%	3.68%	10.01%	42.23%	42.81%	4.22	0.86
Women	1.51%	6.71%	16.69%	45.13%	29.95%	3.95	0.93
In general, the media is handling the pandemic in a sensationalist manner and creating unnecessary social alarm	2.52%	20.18%	30.66%	34.69%	11.94%	3.33	1.01
Men	2.30%	15.30%	30.84%	37.17%	14.38%	3.46	0.99
Women	2.68%	23.74%	30.54%	32.89%	10.15%	3.24	1.01

Source: Compiled by authors.

5. Discussion and conclusions

The findings show that, during the lockdown, most Catalan citizens (70.5%) consumed more information than they did previously under normal conditions. Furthermore, consumption proved more assiduous, with people checking the news repeatedly over the course of the day. As mentioned in the introduction, this behaviour matches that observed in previous health crises, confirming the need that citizens have for information in contexts of uncertainty. Despite not being one of the objectives of this research, one of the questions the results pose is whether this increased consumption contributed to a better understanding of the pandemic. A report by the Reuters Institute (Nielsen et al., 2020) sheds light on the matter. In this report, 56% of those interviewed asserted that the Spanish media helped them to understand the crisis, while 32% believed that the media blew the pandemic out of proportion. The percentage of people who believe that Government information helped them to understand the pandemic is 40%, the lowest among the six countries included in the study.

The second objective was to determine whether Catalan citizens experienced information overload, similar to that observed in previous studies. The results demonstrate that a by no means insignificant number of citizens, almost half, were subjected to excessive information, which resulted in information fatigue. It should be noted that a higher rate of information overload was reported among individuals who consumed media more frequently. The fact that it is precisely this segment of the population that grew more tired of news is something should raise concerns and warrants further reflection with a view to identifying the causes. If we might venture a response, one possible cause may be linked to the quality of the information provided. The results, as can be observed, seem to indicate a lack of quality in the information, characterised by ideological bias and a certain propensity for sensationalism.

Lastly, as noted by Schmitt, Debbelt and Schneider (2018), information overload should not merely be understood in terms of exposure to an excessive amount of information, but also with regards to the adverse effects this overexposure may have. One such effect is stress or anxiety, which often causes citizens to avoid consuming news (roughly 40% of our participants). In this regard, it should also be noted that roughly half of survey participants agreed that the media coverage of the pandemic was excessive.

Information overload compromises people's information defences. Citizens, exhausted, evade information and apply filters that make the amount of content they consume more tolerable. This behaviour, which emerges as a means of self-defence, has, nevertheless, pernicious effects, such as insensitivity towards guidelines for preventing the spread of the virus (Hong & Kim, 2020) and increased vulnerability to misinformation.

Lastly, as regards the third objective, a certain degree of ambivalence has been noted towards the information supplied by the media. The perception of quality is part of an unstable balance, with those who believe that the media reported the news correctly holding a slight advantage; a position which nonetheless dwindles if we consider other indicators. Thus, an overwhelming number of respondents believe that the coverage provided by the media is influenced by the organisations' respective editorial slants. A characteristic typical of the Mediterranean model defined by Hallin and Mancini (2004), typified, among other things, by a high degree of media polarisation. Sensationalism is another characteristic of the media coverage, at least as far as the respondents are concerned.

The results of the study, despite the limitations indicated in the methodology, paint a picture in line with that observed in investigations performed in similar health emergency situations. Ironically, although media outlets now draw wider audiences than ever before, the amount of information provided, coupled with the poor quality of this information, ends up driving part of this audience away. Nonetheless, the media is by no means solely to blame for information overload and its consequences. Factors beyond the media's control also play a part in this expulsion or, shall we say, self-expulsion. One such factor is the impact of the lockdown on the population's mental health. The forced confinement and uncertainty surrounding the pandemic

have had adverse effects, including anxiety, fear, frustration, loneliness, etc. Faced with these circumstances, one means of self-defence is to distance oneself from the impulses –e.g. the bombardment of information, most of which is negative– that fuel these pernicious effects.

Acknowledgments

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Research Article

Data Journalism as an innovation in social communication: The case in sports industry

El periodismo de datos como innovación en la comunicación social: El caso de la industria del deporte

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Abstract: Data analysis has always been an integral part of journalism but combining it with technology was a novelty for newspapers. Journalism's combination with technology was an innovation because of processing, interpretation, and visualization of large datasets in a journalistic content. In recent years, newspapers have started to adapt data journalism and integrated it to sports for better storytelling and making sports more understandable for readers. This research aims to analyse sports data journalism practices in Spain with a quantitative approach with content analysis of 1068 data journalism articles published by 6 newspapers (Marca, Mundo Deportivo, AS, El Mundo, El Periódico, El Pais) between 2017-2019. Quantitative analysis focuses on how sports data journalism is being adapted in Spain, technical features of articles, and the similarities and differences between sports and national newspapers to identify integration of sports data journalism.

Keywords: data journalism; digital journalism; sports journalism; data visualisation; content analysis; innovation; Spain.

Resumen: El análisis de datos siempre ha sido una parte integral del periodismo, pero combinarlo con la tecnología ha sido una novedad para la prensa escrita. La combinación del periodismo con la tecnología se ha presentado como una innovación reciente debido al procesamiento, la interpretación y la visualización de grandes conjuntos de datos utilizados en el contenido periodístico. En los últimos años, los periódicos han adaptado el periodismo de datos integrándolo, por ejemplo, en industrias como el deporte, mejorando la narración y haciendo que los deportes sean más comprensibles para los lectores. En este sentido, esta investigación tiene como objetivo analizar las prácticas de periodismo de datos deportivo en España con un enfoque cuantitativo a través del análisis de contenido de 1.068 artículos de periodismo de datos publicados por 6 periódicos (Marca, Mundo Deportivo, AS, El Mundo, El Periódico, El País) entre 2017-2019. El análisis se centra en cómo se está adaptando el periodismo de datos deportivo en España, las características técnicas de los artículos y las similitudes y diferencias entre los periódicos deportivos nacionales en relación con la integración del periodismo de datos.

Palabras clave: periodismo de datos; periodismo digital; periodismo deportivo; visualización de datos; análisis de contenidos; innovación; España.

1. Introduction

The data-driven transformation of journalism has gained momentum in recent years, and it has started to displace conventional journalism in favour of digital media. While data is used in conventional journalism, data journalism has emerged because of the digital transformation of data and its dissemination to the reader. Journalism has been reshaped several times across history. In time, journalistic methods engaged with new fields such as precision journalism and computer-assisted reporting, and the process is still ongoing. Progress in data-driven journalism began with Philip Meyer's Precision Journalism in the 1970s, and major advancements occurred after the 1980s with the emergence of computer-assisted reporting (Meyer, 1991). Many application methods for journalistic practices in order to collect, analyse, and combine data by computer processing are used in precision journalism. Meyer (1991) also refers to this journalistic activity as 'database journalism'. Based on Meyer (1991), a journalist should know "how to find information", "how to evaluate and analyse it" and "how to communicate it in a way that will pierce the babble of information overload and reach the people who need and want it". Precision journalism took a scientific approach to the techniques used and the common goals. It included both a science and a market component. In the light of these, Philip Meyer also recognized as the pioneer of Computer-Assisted Reporting (CAR). In the forthcoming years, Bruce Garrison (1998) explained the connection between precision journalism and CAR as: "Precision journalism, the code word for a generation of computer assisted reporting, but the two terms essentially describe the same quantitative approaches to news reporting". CAR changed the way journalists work and thought about news, and that transition is not solely motivated by modern technology but must be considered in a wider context (Hammond, 2015). Newsrooms became more familiar with emerging technology, analytics, visualization, and investigative journalism as a result of the use of CAR techniques in stories, and CAR developed into data-driven practices, which would be dubbed data journalism in the coming years.

2. Emergence of data journalism

Working with data has always been a crucial element of journalism but merging it with technology was an innovation. Journalists had traditional skills, but the innovation was making journalists both graphic designers and coders. Data searching, processing, interpretation, and visualisation were the new skills for journalists and data journalism was transforming the ideal journalism term to a new and innovative term. The precursors of data journalism consistently pointed to the journalists as still journalists but with data analysis and data visualisation talents. Journalists and academics made various descriptions of data journalism, but the common point of all descriptions was the using data to tell a story in a better way. However, the main description of data journalism has been made by Howard (2014) as "gathering, cleaning, organizing, analysing, visualising, and publishing data to support the creation of acts of journalism". Later, academics described data journalism based on Howard's words. Coddington (2015) pointed to an overlap of journalistic practices and highlighted the specific features of CAR, data journalism, and computational journalism. According to Coddington (2015) CAR was focusing on investigative reporting, while data journalism was mainly based on open data, and computational journalism was aiming to combine programming and algorithms. Veglis and Bratsas (2017) explained data journalism in a similar way and described it as finding data and extracting the necessary information from that data to write an article with visualisations. It was a way to enrich the article and highlight the significance of the story for readers.

When Wikileaks released the Afghan War Logs in 2010, it sparked global attention, and it has since come to be regarded as the starting point of data-driven journalism. Wikileaks, on the other hand, should not be regarded as the very first example of data journalism in terms of the stages of a data-driven report, but rather as an example of data journalism's roots as Baack (2011) claims. After Wikileaks, data journalism practices started to be seen in the US and UK. Simon

Rogers and Steve Doig integrated data journalism to newsrooms and played a crucial role in spreading data journalism (Grassler, 2018). Through the Guardian and the New York Times, data journalism practices were accepted as a profession in the newsrooms and influenced other newspapers to create data departments and publish data journalism articles (Olivo, 2015; Howard, 2014; Tandoc Jr. & Oh, 2017). Following years witnessed to the Upshot (Olivo, 2015; Howard, 2014) which is a data journalism blog by the New York Times, and the data journalism projects of the Washington Post (Craig & Zion, 2014; Schulze, 2015; Michalzki, 2016) the Financial Times, and BBC (Borges-Rey, 2016). Data journalism practices in the US and UK were followed by European countries such as Sweden (Appelgren & Nygren, 2014; Appelgren & Salaverria, 2018), Belgium (De Maeyer et al., 2015; Grassler, 2018), Greece (Charbonneaux & Gkouskou-Giannakou, 2015), Italy (Porlezza & Splendore, 2019), and Spain (Ferreras Rodríguez, 2016; Blanco Castilla & Quesada, 2016; Rivera Hernandez & Rojas Torrijos, 2016; La-Rosa & Sandoval-Martin, 2016; Appelgren & Salaverria, 2018; Grassler, 2018; Arias et al., 2018) and data journalism became a profession in the whole world.

3. Data journalism meets sports industry

Sports and data journalism are a great match because sports have an abundance of data in every branch to help audiences, media, and industry professionals understand and interpret the game. However, there is still a complicated relationship between sports and data in terms of collecting data and developing the skills necessary to properly analyse and visualize it. Data journalist John Burn-Murdoch explained the importance of sports data journalism as: "During an event like the Olympics, this need becomes more acute because many people follow them through the internet to keep track of the dozens of events held there each day. A clear graph is a great opportunity to make the information stand out within such a large amount of data, and it can be fully understood in the same moment" (Rivera Hernandez & Rojas Torrijos, 2016). Because of the growing success of sports organizations on both a national and international level, the first sports data journalism practices began in English-speaking media with baseball and then expanded to basketball, football, and more recently other branches (Rojas Torrijos, 2016). During the Winter Olympics and World Cup in 2014, the New York Times, the Guardian, the Economics, and the Washington Post published the first examples of sports data journalism. These events provided an opportunity for newsrooms to launch new innovations and data teams during the same year (Rivera Hernandez & Rojas Torrijos, 2016). The following years saw the rise of FiveThirtyEight and Grantland, both of which play important roles in sports data journalism. Nate Silver created FiveThirtyEight as a personal project when the website was owned by the New York Times, then ESPN, and then ABC News, and won numerous awards (Rojas Torrijos, 2015). Through the projects of American and British media European countries were inspired by successful examples and began to pay more attention to sports data journalism.

4. Spanish data journalism and its integration with sports

In 2011, data journalism and various forms of data-driven projects grew in popularity in Spanish media. RTVE opened a data section under the Audiovisual Innovation Laboratory, and they released their first project, which is about the campaign pledges of Spanish political parties (Ferreras Rodríguez, 2016). After 2011, MediaLab Prado began hosting data journalism conferences and seminars to promote data journalism. With the assistance of The International Consortium of Investigative Journalists (ICIJ), Open Knowledge Foundation (OKFN), and European Journalism Center (EJC), MediaLab Prado and CCCBLab have begun to provide some grants for data journalism and later Medialab Prado organized 'Data Journalism Seminar' in 2011 before the transparency law. This seminar is accepted as the first data journalism event in Spain (Blanco Castilla & Quesada, 2016).

Data-driven sports journalism began in 2011 with 'munideporte.com' an online sports publication and continued with 'Quality Sport' a tablet publication focused primarily on women's football in 2012 (Labarga-Adán et al., 2018). Even though data journalism methods and a few monthly publications existed in Spain, the official introduction of data journalism in daily newspapers was first seen in 2013 in El Confidencial and after that El Español, El Mundo, El Periodico, and El Pais started to publish data-driven projects in the following years (Rivera Hernandez & Rojas Torrijos, 2016). Newsrooms began to recognize the value of data journalism in sports as new narratives emerged in the digital media. Articles with visualised data were helping readers understand, making sports simpler and becoming them familiar to the events (Rivera Hernandez & Rojas Torrijos, 2016). In Spain, the majority of newspapers now have separate data units. These units, however, collaborate with all sections in national newspapers. The adaptation cycle of sports data journalism is still ongoing within those circumstances. But it's seen that the majority of newspapers now publish online news that are more data and visual focused.

Until 2015, there were 21 digital sports news sources that paved the movement for sports data journalism. Olympics, women's football, tennis, basketball, football covered by these digital platforms (Manfredi Sánchez et al., 2015). AS Color, a digital edition for subscribers, preceded these measures, but with one notable difference. AS Color began as a printed newspaper in the early 1970s and, after nearly 40 years, transitioned to media with its digital edition. Sport joined the digital journalism community in 2014 when it released its digital edition, which was distributed on a monthly basis for tablets (Rojas Torrijos, 2015). Marca had a great deal of success. Marca Plus was launched in 2014 and has been one of Unidad Editorial's most successful emerging technology publications, "with 83 numbers in its first three years, an impressive positioning in the digital market: an average of 225,000 downloads per number and over fourteen million downloads since its launch." (Labarga-Adán et al., 2018). Multimedia content, data, gamification, and photojournalism were all used to create Marca Plus. In the field of data visualization and reader interaction with games, Marca Plus was achieving all data journalism practices. Following Marca, AS, and Sport, other newspapers, such as Mundo Deportivo El Periodico, Lavanguardia, and El Pais transformed their sports sections to more interactive and data driven.

5. Objectives and Method

This research aims to analyse data journalism practices in Spanish sports media and compare the adaptation process and preferable features in data journalism articles adapted by national and sports newspapers. In the light of these, this research aims to find answers to research objectives described below:

- *Research Objective 1:* To analyse technical features of sports data journalism articles in particular design principles, visualisation techniques, data sources, and trending topics.
- *Research Objective 2:* To identify the differences and similarities between the data journalism articles published by sports and national newspapers.

To find solid answers to proposed research objectives, we used content analysis of the published sports data journalism articles in the websites of Marca, Mundo Deportivo, Diario AS as sports newspapers and El Mundo, El Periodico, El Pais as national newspapers between 2017 and 2019.

This study aims to analyse the current level of sports data journalism in Spain with a quantitative approach. Quantitative approach led us to identify the technical features of sports data journalism articles including visualisation types, interactivity, data sources, trending topics, story properties and paved the way to achieve a comparative analysis between sports and national newspapers. We selected the time period as January 2017 to December 2019 based on the relatively late arrival of data journalism and its adaptation process in Spain and analysed sports

data journalism articles published in the websites of Marca, Mundo Deportivo, AS, El Periodico, El Mundo and El País. These newspapers were selected in order to their interest to publish data journalism articles, higher number of published articles compared to other newspapers and their daily circulation. Selected time period also presented the progress of data journalism in Spain and different paths followed by national and sports newspapers during this time. Finally, the final research sample was 1068 sports data-journalism based stories (Table 1).

Table 1. Research Sample.

Year	Newspaper						Total
	Marca	Mundo Deportivo	Diario AS	El Mundo	El Periodico	El Pais	
	n	n	n	n	n	n	n
2017	125	2	164	10	25	53	379
2018	70	29	184	39	24	87	433
2019	39	20	116	35	27	19	256
Total	234	51	464	84	76	159	1068

Source: Authors' elaboration from https://www.marca.com, https://www.mundodeportivo.com, https://as.com, https://www.elmundo.es/deportes.html, https://elpais.com/deportes/, https://www.elperiodico.com/es/deportes/

We created the codebook based on the relevant literature and the recent studies about data journalism (Appelgren, 2017; Loosen et al., 2017; Stalph, 2017; Tandoc Jr. & Oh, 2017; Veglis & Bratsas, 2017; Zhang & Feng, 2018) and we adapted the variables of related research to this study. The codebook consisted of 9 elements which are number of creators, data source, accessibility of data, topic, story property, number of visualisations, visualisation type, form of interactivity, and ratio of text and multimedia (Table 2).

Table 2. The Codebook.

Number of creators	0. Not mentioned; 1. 1 creator; 2. More than 1 creator
Data source	0. Not mentioned; 1. Mentioned
Accessibility of data	0. Not accessible; 1. Accessible
Topic	1. Football; 2. Basketball; 3. Tennis; 4. Motorsports; 5. Cycling; 6. Other
Story property	1. Comparison; 2. Connection and flow; 3. Changes over time; 4. Statistics; 5. Prediction; 6. Other
Number of visualisations	1. 1 visualisation; 2. 2 or 3 visualisations; 3. More than 3 visualisations
Visualisation type	1. Static; 2. Interactive

Form of interactivity	0. No interactive functions; 1. Transmissional interactivity (play, pause, zoom, buttons); 2. Consultational interactivity (timeline, menu, filters); 3. Conversational interactivity (personalization, inputs)
Ratio of text and multimedia	1. Mostly text; 2. Mostly multimedia; 3. Balanced; 4. Just multimedia

Source: Authors' elaboration based on The codebook is designed according to Appelgren, 2017; Loosen et al., 2017; Stalph, 2017; Tandoc Jr. & Oh, 2017; Veglis & Bratsas, 2017; Zhang & Feng, 2018.

Features of sports data journalism articles, changing trends in time, current data access level were identified through content analysis and sought solid answers to research objectives. Quantitative analysis of 1068 sports data journalism articles from selected newspapers presented the current adaptation level of data journalism in Spanish newsrooms and highlighted the differences between sports and national newspapers.

6. Results

Analysis of the articles published in selected newspapers presented the popular topics in sports data journalism and changing trends in years in both sports and national newspapers. Footballisation in sports journalism was observed in the analysed sample. Data journalism articles in football were seen as 65.2% in sports newspapers and 51.7% in national newspapers. Dominance of football articles was seen in each newspaper as 88.46% in Marca, 39.22% in Mundo Deportivo, 56.25% in Diario AS, 50% in El Mundo, 56.58% in El Periodico, 50.31% in El Pais. The analysis presented the visibility of other sports branches in sports and national newspapers. It was seen that basketball, tennis, motorsports, and cycling were published more by national newspapers while other sports including minor branches and Olympic sports were covered more by sports newspapers and sports newspapers were more football centric. (Table 3).

Table 3. Topics covered in sports data journalism articles between 2017-2019.

Topic	Sports newspapers		National newspapers	
	n	%	n	%
Football	488	65,2	165	51,7
Basketball	58	7,7	30	9,4
Tennis	39	5,2	50	15,7
Motorsports	54	7,2	34	10,7
Cycling	32	4,3	14	4,4
Other	78	10,4	26	8,1
Total	749	100	319	100

Source: Authors' elaboration from https://www.marca.com, https://www.mundodeportivo.com, https://as.com, https://www.elmundo.es/deportes.html, https://elpais.com/deportes/, https://www.elperiodico.com/es/deportes/ based on Table 2.

Different narratives were seen in the sports data journalism articles published between 2017 and 2019. Comparison was the most preferred story property in both sports and national newspapers. Comparison based data journalism articles were mainly about significant games and key players. 34.7% of the data journalism articles in sports newspapers were based on comparison while 37.9% of the articles in national newspapers were comparison based. 'Other' as story property was seen as 20.2% in sports newspapers and 24.8% in national newspapers which includes photo-based explanations, mappings, listings, and drawings (Table 4). Statistics and change over time-based data journalism articles were seen at high rates as well and the least preferred story property was seen as prediction (Table 4). It is also notable that sports data journalism articles based on prediction were not seen in Diario AS, El Mundo, and El Pais.

Table 4. Story properties found in sports data journalism articles between 2017-2019.

	Sports newspapers		National newspapers	
Story property	n	%	n	%
Comparison	260	34,7	121	37,9
Connection & flow	49	6,5	12	3,8
Change over time	84	11,2	44	13,8
Statistics	198	26,4	61	19,1
Prediction	7	0,9	2	0,6
Other	151	20,2	79	24,8
Total	749	100	319	100

Source: Authors' elaboration from https://www.marca.com, https://www.mundodeportivo.com, https://as.com, https://www.elmundo.es/deportes.html, https://elpais.com/deportes/, https://www.elperiodico.com/es/deportes/ based on Table 2.

Sports data journalism articles were created by journalists, data journalists and infographic artists based on the related departments and the number of article creators were variable. Both sports and national newspapers presented dominant rates in articles with 1 creator. 67% of the articles in sports newspapers were created by 1 journalist and/or infographic artist while the national newspapers were 51.7% (Table 5). It is also significant to highlight El Mundo in terms of mentioning the creators in each data journalism article which gives visibility to the author. Data journalism articles without any information of creators were not seen in El Mundo. Articles with more than 1 creator were mainly seen in more detailed stories and articles covered international events such as Olympics, Champions League, Euroleague and F1. These events were happening regularly, and the newspapers were planning their articles before the events because of the significance of events and audience interest.

Data sources are accepted as one of the most significant elements in data journalism articles. Based on the analysis of 6 newspapers, data journalism articles with data sources seen at high rates as 64.6% in sports newspapers and 74% in national newspapers (Table 6). In particular, Mundo Deportivo and El Periódico presented opposite results. Sports data journalism articles without data sources were seen with 98.04% in Mundo Deportivo and 97.37% in El Periódico in the analysed time period. El Mundo and El País were more likely to share data sources in articles with 97.62% in El Mundo and 95.6% in El País. It's worth noting that accessibility of data sources

was not seen in Mundo Deportivo, Diario AS, El Mundo, El Periodico and El País however Marca was the only newspaper that gives access to data sources in 4.7% of the articles.

Table 5. Number of creators in sports data journalism articles between 2017-2019.

	Sports newspapers		National newspapers	
Number of creators	n	%	n	%
Not mentioned	94	12,6	28	8,8
1 creator	502	67,0	165	51,7
More than 1 creator	153	20,4	126	39,5
Total	749	100	319	100

Source: Authors' elaboration from https://www.marca.com, https://www.mundodeportivo.com, https://as.com, https://www.elmundo.es/deportes.html, https://elpais.com/deportes/, https://www.elperiodico.com/es/deportes/ based on Table 2.

Table 6. Data sources of sports data journalism articles between 2017-2019.

	Sports newspapers		National newspapers	
Data sources	n	%	n	%
Not mentioned	265	35,4	83	26,0
Mentioned	484	64,6	236	74,0
Total	749	100	319	100

Source: Authors' elaboration from https://www.marca.com, https://www.mundodeportivo.com, https://as.com, https://www.elmundo.es/deportes.html, https://elpais.com/deportes/, https://www.elperiodico.com/es/deportes/ based on Table 2.

A diversity in the number of visualisations used in articles were seen in sports newspapers while national newspapers were publishing data journalism articles with 1 visualisation dominantly (Table 7). In addition, the number of visualisations presented preferred styles by newspapers. Sports data journalism articles published by Diario AS showed balanced rates in number of visualisations while El Mundo and El Periodico were preferring articles with 1 visualisation. Also, articles with more than 3 visualisations were not preferred by these newspapers and seen with 5.26% in El Periodico and 0 in El Mundo. Use of more than 3 visualisations were mostly seen in the articles with transmissional and consultational interactivity in the topics of big events, end of season comparisons, and league statistics. Visualisations in sports data journalism articles in the analysed period were mostly static and did not allow readers to play and interact with visualisations. It was seen that 84% of the visualisations in sports newspapers and 96.6% of the visualisations in national newspapers were static (Table 8).

Table 7. Number of visualisations in sports data journalism articles between 2017-2019.

	Sports newspapers		National newspapers	
Number of visualisations	n	%	n	%
1 visualisation	273	36,5	160	50,1
2-3 visualisations	218	29,1	88	27,6
More than 3 visualisations	258	34,44	71	22,3
Total	749	100	319	100

Source: Authors' elaboration from https://www.marca.com, https://www.mundodeportivo.com, https://as.com, https://www.elmundo.es/deportes.html, https://elpais.com/deportes/, https://www.elperiodico.com/es/deportes/ based on Table 2.

Table 8. Visualisation types in sports data journalism articles between 2017-2019.

	Sports newspapers		National newspapers	
Visualisation type	n	%	n	%
Static	629	84,0	308	96,6
Interactive	120	16,0	11	3,4
Total	749	100	319	100

Source: Authors' elaboration from https://www.marca.com, https://www.mundodeportivo.com, https://as.com, https://www.elmundo.es/deportes.html, https://elpais.com/deportes/, https://www.elperiodico.com/es/deportes/ based on Table 2.

Form of interactivity in sports data journalism articles presented a difference in sports and national newspapers. Articles with no interactive functions were dominant with 80.2% in sports and 94.6% in national newspapers but the use of transmissional, consultational, and conversational interactivity presented different rates (Table 9). Sports newspapers were more interested in publishing articles with transmissional interactivity which includes playing, pausing, zooming and button options than national newspapers. However, Diario AS was seen as the primary newspaper publishing articles with no interactive functions. 99.78% of the articles published by Diario AS had no interactive functions. In addition, the analysis presented the lack of consultational and conversational interactivity in national newspapers. 1.6% of the articles published by national newspapers had consultational interactivity and all these articles were seen in El Pais. Conversational interactivity was not observed in national newspapers.

Ratio of text and multimedia in the analysed sports data journalism articles presented opposite results. Articles based on mostly multimedia was seen dominantly in sports newspapers and followed by articles with balanced use of text and multimedia (Table 10). Sports newspapers were interested in storytelling mainly with visualisations and less text. However, there was no balance in national newspapers in terms of ratio of text and multimedia. National newspapers were publishing data journalism articles either with just multimedia or mostly text.

Table 9. Form of interactivity seen in sports data journalism articles between 2017-2019.

	Sports newspapers		National newspapers	
Form of interactivity	n	%	n	%
No interactive functions	601	80,2	302	94,6
Transmissional	81	10,8	12	3,8
Consultational	61	8,1	5	1,6
Conversational	6	0,8	0	0
Total	749	100	319	100

Source: Authors' elaboration from https://www.marca.com, https://www.mundodeportivo.com, https://as.com, https://www.elmundo.es/deportes.html, https://elpais.com/deportes/, https://www.elperiodico.com/es/deportes/ based on Table 2.

Table 10. Ratio of text and multimedia in sports data journalism articles between 2017-2019.

	Sports newspapers		National newspapers	
Ratio of text and multimedia	n	%	n	%
Mostly text	41	5,5	100	31,4
Mostly multimedia	434	57,9	32	10,0
Balanced	202	27,0	55	17,2
Just multimedia	72	9,6	132	41,4
Total	749	100	319	100

Source: Authors' elaboration from https://www.marca.com, https://www.mundodeportivo.com, https://as.com, https://www.elmundo.es/deportes.html, https://elpais.com/deportes/, https://www.elperiodico.com/es/deportes/ based on Table 2.

6. Discussion and Conclusion

The analysis presented the features of sports data journalism articles in selected newspapers and a comparative perspective. Based on the research, similarities, and differences in technical characteristics of sports data journalism articles published by sports and national newspapers were observed. These results were significant to identify the current adaptation level of data journalism in Spanish newsrooms. Results presented an ongoing progress in Spanish newsrooms and variable perspectives of newspapers towards sports data journalism.

We identified the footballisation in Spanish sports media through the number of data journalism articles about football during the selected time period and this dominance was based on the amount of audience and reader interest. Cycling was the least visible sports branch in Spanish data journalism. We observed that all newspapers were interested in publishing football but in time national newspapers started to publish more articles in other topics too. The analysis presented increased numbers of tennis and basketball articles in El Mundo, tennis, and motorsports articles in El Periodico and men's tennis articles in El Pais in the analysed time

period. We discovered that El Mundo's data journalism stories were mostly focused on single events such as the FIFA World Cup and the Olympics. Increased percentages of certain topics over time were found to be due to global events, according to the study. Football and "other" sports had the most significant rises.

We analysed that all newspapers were publishing comparison based articles regularly. Comparison based data journalism articles were seen at higher rates compared to other story properties. However, other story properties presented a variety in results. Sports newspapers were publishing comparison, statistics, and 'other' dominantly but connection and flow and change over time based articles were also preferred. Dominance of comparison, statistics and 'other' based data journalism articles were observed in national newspapers but the interests towards connection and flow was lower and connection and flow was higher than sports newspapers. Use of other techniques was seen in El Periodico and El Pais intensively. Sports were offering advanced statistics however not all readers were qualified enough to understand these statistics. Sports were more comprehensible to readers through data journalism articles and based on this idea we identified that Spanish newspapers were choosing comparison and statistics-based articles to make it simpler. We observed a lack of education in newsrooms based on the dominance of articles based on 'other' techniques such as photo-based explanations, mappings, drawings because advanced knowledge in data journalism tools were not needed to create these types of articles.

Sports and national newspapers presented similar results in terms of number of creators. Data journalism articles were written and visualised by 1 creator in both sports and national newspapers dominantly. The articles with more than 1 creator were observed at higher rates in national newspapers. Most of the articles were written by a single creator but there was a connection between the number of creators and the number of visualisations. While the number of visualisations were increasing, the numbers of creators were increasing at the same time. It was seen that El Pais increased the number of visualisations and included more creators in the articles during the analysed period. It was seen that data journalism articles in national newspapers had more information about data sources than sports newspapers. These data sources were generally private data providers, transparency portal, and open data. When there were few data sources, national newspapers were mentioning all data sources used in the article. Sports newspapers were generally publishing the name of the single data source which is an open portal or a data came from a provider. When there were few data sources sports newspapers were mentioning the data source as "own elaboration." We observed that the data sources of newspapers were not accessible except a few articles in Marca.

Sports newspapers were more interested in publishing more visualisations than national newspapers. Data journalism articles with 1 visualisation and longer texts were seen in the analysis of national newspapers while sports newspapers were interested in publishing higher numbers of visualisations based on less text. Sports newspapers were aiming to tell the story mainly with visualisations and supportive text while national newspapers were using less visualisations and dominant amounts of text. We also identified the difference in use of interactivity between sports and national newspapers. Both sports and national newspapers were mainly publishing data journalism articles with no interactive functions however sports newspapers were trying different techniques to communicate with readers. Sports newspapers were trying to use all types of interactivity which are transmissional, consultational, and conversational; national newspapers were more depending on classical formats. Lower numbers of articles with transmissional and consultational interactivity were seen in the analysis of the articles in national newspapers while there was not an article with conversational interactivity.

Sports is offering a variety of stories behind advanced statistics, but we identified that the progress of sports data journalism in Spanish newsrooms was not at the desired level compared to other countries. Possible reasons for this slow progress can be discussed in order to identify the current level in a better way. Daily workload, lack of education and traditional journalistic

environment in Spain can be assumed as the reasons for the progress in recent years. Data journalism tools and new narrative techniques are rapidly growing, and it can be challenging to follow these new trends for Spanish newspapers. Also, daily workload is a significant point to create data journalism articles to spend the necessary time for planning, research, and visualising. At this point, we observed that the adaptation of data journalism in sports newspapers was at a higher level than national newspapers. These observations can be discussed under publishing in specialized topics. National newspapers are publishing articles in several topics and the newsrooms need to organize the workload for data journalism articles for all topics. However, sports newspapers are publishing almost the same number of articles but specialized just in sports. Data journalists, infographic artists, and reporters are specialized in sports and the daily workload is not affected by Spain's daily agenda like national newspapers.

Consequently, the current level of sports data journalism in Spain is promising for the future years because of the global interest to Spanish sports industry, available data, and players' and teams' popularity around the world. However, newspapers should create separate data journalism departments in order to expedite this progress and more investment is needed for data journalism education.

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Research Article

¿Desaparecidas o escondidas? Análisis de la presencia de las ciencias sociales y las humanidades en las versiones online de The Guardian, El País y Público

Disappeared or hidden? Analysing the presence of social sciences and humanities in online versions of The Guardian, El País and Público

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Resumen: La histórica división y jerarquización de los distintos saberes se ha trasladado también al periodismo científico, que ha primado habitualmente ciertas áreas como la ciencia, la tecnología, la ingeniería o las matemáticas (CTIM). En este contexto, el objetivo de este estudio ha consistido en analizar la presencia de las ciencias sociales y las humanidades en los medios online, partiendo de la idea de que, dadas sus características, los cibermedios son herramientas idóneas para el periodismo científico y se prestan a incluir nuevos temas. Mediante el análisis de contenido, se han estudiado 208 informaciones sobre ciencia publicadas en El País (España), Público (Portugal) y The Guardian (Reino Unido). Los resultados indican que la presencia de las ciencias sociales y las humanidades es menor que la de las ciencias duras y asciende a una de cada tres informaciones analizadas, siendo la historia y la economía los temas más presentes. Los datos también indican que las noticias sobre las ciencias sociales y las humanidades tienden a utilizarse en mayor medida como fuentes de autoridad, con una presencia más dispersa en diferentes secciones del medio, frente a un mayor valor noticioso de los resultados de las investigaciones en las áreas de la ciencia, la tecnología, la ingeniería o las matemáticas, que tienden a aparecer con mayor frecuencia en la sección específica de cada medio. Por todo ello, el protagonismo de las ciencias sociales y las humanidades tiende a quedar diluido en las páginas de los medios de comunicación frente al resto de las disciplinas científicas.

Palabras clave: medios online; periodismo científico; ciencias sociales; ciencias duras.

Abstract: The traditional division and hierarchy of the different areas of knowledge in the field of science has also been transferred to the study of science journalism, which has given priority to certain areas, and has shown a superior interest in science, technology, engineering and mathematics (STEM). In this context, the objective of this study has been to analyze the presence of social sciences and humanities in online media, based on the idea that, given their characteristics, they are ideal tools for scientific journalism, since they allow the inclusion of new topics. The results indicate that the presence of social sciences and humanities is less than that of hard sciences and increases one of every three pieces of information analyzed

being history and economics as the most present topics. The data also indicate that the news on the social sciences and the humanities is to be used to a greater extent as sources of authority, with a more dispersed presence in different sections. On the contrary, the results of investigations in the areas of science, technology, engineering or mathematics have greater news value, and appear with greater frequency in the specific section of each media. Throughout, the prominence of social sciences and the humanities tends to be diluted in the pages of the media in relation to the rest of the scientific disciplines.

Keywords: online media; science journalism; social science; hard science.

1. Introducción

La red es una herramienta idónea para el periodismo científico (Brossard, 2013), cuya máxima prioridad desde su génesis ha sido acercar el conocimiento a la sociedad (Fernández de Lis, 2014). Las características intrínsecas de los cibermedios -la multimedialidad, la hipertextualidad y la interactividad (Deuze, 2001; Salaverría, 2005)- junto con lo que otros autores han denominado memoria o documentación (Daltoé, 2003) permiten profundizar en las principales singularidades atribuidas al periodismo científico: la necesidad de ofrecer los hechos noticiosos en su contexto (Alcíbar, 2004) y la importancia de las fuentes informativas (Elías, 2008). Asimismo, los medios digitales representan una oportunidad para experimentar con una nueva forma de comunicación y para abrir el espacio a nuevos temas (Franquet et al., 2007).

Estas potencialidades, sin embargo, están obligadas a lidiar con las dificultades y transformaciones que experimenta el periodismo en general y el periodismo científico en particular (Peters et al., 2014). El modelo de negocio de las empresas comunicativas está en crisis y este hecho repercute tanto en la situación laboral de los profesionales de la comunicación científica (Bauer et al., 2013; Schäfer, 2017), como en los contenidos que elaboran (Russell, 2010).

Si bien es cierto que la ciencia en general nunca ha sido una prioridad para los medios de comunicación (Dunwoody, 2008), la crisis financiera y la que, específicamente, acusan los medios de comunicación, ha provocado la desaparición de suplementos y secciones específicas sobre este ámbito y ha reducido la plantilla de los que han conseguido mantenerse (Schafër, 2017; Semir, 2010). Por ello, a pesar de que se investiga más que nunca, la cobertura que los medios han venido ofreciendo es menor (Cortiñas & Alonso, 2014), por lo que los y las periodistas tienen un reto mayúsculo para transmitir los avances, contextualizándolos y explicando su magnitud (López-Cantos et al., 2020). Ciertos estudios, sin embargo, apuntan a que esta tendencia se está invirtiendo (Olvera-Lobo & López-Pérez, 2015), aunque todavía está por ver la repercusión que puede tener la crisis derivada del Covid-19 en la relación entre los medios de comunicación y la ciencia, teniendo en cuenta que la pandemia ha tenido un efecto "disruptivo" sobre el periodismo (Casero-Ripollés, 2020: 22).

A los problemas citados hay que añadirle un descenso en la credibilidad y la calidad de la información científica (Bauer et al., 2013), provocado fundamentalmente porque los nuevos medios exigen rapidez y ello dificulta la elaboración de contenidos originales, la contextualización de los hechos y la verificación de las fuentes (Williams & Clifford, 2009). La diversificación y el aumento de emisores de contenidos científicos (Peters et al., 2014; Trench, 2007) ha provocado, además, que la competencia entre diferentes medios sea mayor y se opte por contenidos vinculados al entretenimiento (Francescutti, 2018) y por un tratamiento sensacionalista de los hechos (De Semir, 2015; Molek-Kozakowska, 2017), que busca la aceptación por parte de un número mayor de consumidores. No obstante, otros autores inciden en que precisamente la crisis y el aumento de la competencia ha provocado un incremento de los contenidos analíticos, que inciden en el contexto y la comprensión por parte de los consumidores (Dunwoody, 2020: 473).

El ciberperiodismo es una de las áreas más fructíferas dentro de los estudios sobre comunicación (Salaverría, 2005) y, por supuesto, también en el ámbito del periodismo científico, en el que, tal y como se ha citado, ofrece multitud de oportunidades. Sin embargo, las

investigaciones sobre esta área en los cibermedios no son muy numerosas (Brossard & Schefeule, 2013; Olvera-Lobo & López-Pérez, 2015) y, por lo tanto, se presta a un análisis más exhaustivo.

Estudios realizados acerca de la cobertura de la ciencia han demostrado que la información científica es homogénea (Granado, 2011) y selectiva (Olvera-Lobo & López-Pérez, 2015), ya que su tratamiento no difiere entre distintos medios y se centra en temáticas concretas. La física es una de las ramas más representadas junto con la medicina (Meneses, 2016; Segado et al., 2018; Spina & Díez, 2019). Precisamente, varios trabajos destacan el manifiesto interés de los medios por las ciencias naturales y, fundamentalmente, por los temas de salud, de ahí que autores como Bucchi y Mazzolini (2003) se hayan referido a la "medicalización" de las noticias científicas.

A este respecto, la mayoría de los estudios han centrado su atención exclusivamente en el tratamiento de las ciencias naturales y en las áreas denominadas CTIM (Ciencia, Tecnología, Ingeniería y Matemáticas), también conocidas como STEM por su acrónimo en inglés (Science, Technology, Engineering and Mathematics), descartando el análisis de las ciencias sociales y las humanidades. De hecho, a la hora de ofrecer una definición sobre el periodismo científico, autores como Elías (2008) limitan a las ciencias naturales las temáticas que han de abordar los profesionales del periodismo científico.

Por lo tanto, uno de los primeros cometidos a la hora de plantear un análisis acerca del mensaje periodístico sobre la ciencia es limitar la propia definición del objeto a estudiar. El debate sobre esta cuestión está directamente relacionado con la división de las distintas áreas del conocimiento y el estatus del que goza cada una de ellas. Históricamente, se han separado los distintos saberes y las disciplinas y, no solo eso, también se han jerarquizado (Padrón & Alba, 2019), dando más peso a las ciencias técnicas y exactas y menos a las ciencias sociales. El debate no es nuevo, y la brecha existente entre las distintas disciplinas y profesionales que se dedican a estos campos ya fue expuesta en 1959 por Charles Percy, que se posicionó del lado de la ciencia al entender que era el vehículo de los avances, y advirtió de la brecha existente entre científicos e intelectuales. Su concepto de "las dos culturas", fue ampliamente utilizado y referenciado posteriormente (Brockman, 1996).

No obstante, a día de hoy en la tradición anglosajona es muy común la división entre ciencias "duras" y ciencias "blandas" (Meneses, 2016), diferenciando así lo que en nuestro entorno más cercano también se han venido llamando "las ciencias" y "las letras" (López-Maroto, 2020). Algunos autores rechazan esta dicotomía al considerar que no ha de ponerse en duda el carácter científico de las ciencias sociales (Gil Antón, 2004). Al fin y al cabo, tanto las ciencias naturales como las sociales analizan datos empíricos utilizando métodos cuantitativos y cualitativos, siendo el objeto de análisis la principal diferencia (Priest, 2014:63), que en el caso de las ciencias sociales es más abstracto y cambiante.

A pesar de que, tal como señala Nussbaum (2010), el desarrollo económico y tecnológico actual hace que se priorice la tecnología, el saber también tiene que contribuir al conocimiento de la sociedad y sus problemáticas, para aumentar la calidad de vida de las personas (Nussbaum, 2010; Marrero, 2018).

Tal y como se ha señalado, esta discusión también se ha trasladado al área del periodismo científico, porque la falta de una reflexión y definición más generalizada de lo que se entiende por ciencia hace que sea más difícil analizar la cobertura de los medios de comunicación sobre las ciencias sociales y las humanidades (Cassady, 2021). ¿Qué es el periodismo científico o el periodismo sobre ciencia? Wormer lo define como aquel que emplea "resultados, instituciones y procesos en ciencia, tecnología y salud" (Rosen, 2017: 229). Se trataría de lo que el mismo autor califica como la definición clásica de la ciencia y trabajaría, sobre todo, con hallazgos, proyectos y conferencias científicas. Sin embargo, una segunda definición más amplia también incluiría temas del día a día o temas generales, si para ello el periodista precisa hacer alguna referencia a un científico o a un estudio (Wormer, 2008). Por lo tanto, tal y como señalaban Summ y Volpers (2016), en esta segunda definición los contenidos sobre ciencias sociales tienen mayor cabida, por

lo que resulta más efectiva a la hora de enfrentarse a una investigación en la que se tomen en cuenta.

Otros autores han puesto, sin embargo, el foco en las funciones y objetivos del periodismo científico (Nelkin, 1995; Calvo Hernando, 2001; Miller, 2010) y hay quien se ha detenido en los métodos de los periodistas que escriben sobre ciencia, así como en las herramientas lingüísticas que se emplean (Elías, 2008). La mayoría de estos últimos estudios también se refieren, aunque más implícitamente, a las ramas científicas denominadas "duras", pero muchas de las características y procedimientos descritos dan la oportunidad de incluir también las noticias sobre ciencias sociales o humanidades. Dado el debate que existente, algunos autores han incidido en la necesidad de ampliar la definición misma de la "ciencia" para analizar también las ciencias sociales (Davies & Horst, 2016). En este contexto, proponen la utilización del concepto "comunicación de la investigación" (Cassidy, 2021).

Sin una definición unificada y consensuada, los investigadores que pretenden analizar todas las áreas del conocimiento científico han optado por realizar sus propias delimitaciones. Así, Meso y Díaz Noci (2002), en su estudio sobre las revistas científicas digitales, optaron por definir la comunicación científica como "todo tipo de puesta a disposición del público, más o menos amplio, de la comunidad científica o de cualquiera mínimamente interesado, de los conocimientos que se producen en el mundo académico" (2002:607). Consideraron que esta visión más amplia les ofrecía la oportunidad de conocer más certeramente el fenómeno. En esta línea, Olvera-Lobo y López Pérez (2015:769) seleccionan como noticias científicas aquellas que incluyen resultados de investigaciones en todas las áreas de conocimiento o abordan resultados relacionados con las ciencias aplicadas, la ingeniería o la medicina, así como las noticias o los artículos donde la ciencia o su metodología son la base de la argumentación.

Estas delimitaciones del objeto, aunque prácticas, no resuelven los debates en torno a la definición de la ciencia, ni tampoco lo hacen otros estudios que han optado por limitar las áreas analizadas (Summ & Volpers, 2016) o han limitado su examen a actividades científicas concretas (Meneses, 2016), evitando así el debate en torno a la definición de la noticia científica.

En cualquier caso, y a pesar de que todavía son una minoría, varios estudios sí han incluido las ciencias sociales y las humanidades en sus investigaciones (Dunwoody, 1984; Haslam & Bryman, 1994; Cassidy, 2008; Summ & Volpers, 2016; Meneses, 2016; Segado et al., 2018), siendo la psicología la que, tradicionalmente, más interés ha suscitado (Cassidy, 2021). Los datos obtenidos por este tipo de estudios son, sin embargo, contradictorios. Mientras algunos indican que la presencia de las ciencias sociales y humanidades es significativa (Cassidy, 2008); otros concluyen que es residual (Segado et al., 2018). A este respecto, una definición consensuada de la noticia científica quizás podría ayudar a unificar metodologías y a analizar con más rigor la presencia de las ciencias sociales y las humanidades en los contenidos periodísticos, así como el tratamiento diferenciado que se ofrece a los científicos y científicas de las disciplinas sociales (Haslam & Bryman, 1994).

En este contexto, el presente estudio tiene como objetivo analizar la presencia de las ciencias sociales y las humanidades en las informaciones de los medios de comunicación online, así como estudiar las características que los contenidos sobre estas presentan. Por lo tanto, las preguntas de investigación que se plantea y pretende responder este trabajo son las siguientes:

- *Q1:* ¿Qué porcentaje de contenidos corresponden a las ciencias sociales y las humanidades?
- *Q2:* ¿Qué disciplinas son las más representadas?
- *Q3:* ¿En qué secciones se publican los contenidos sobre ciencias sociales y humanidades?
- *Q4:* ¿Qué géneros informativos son los que más se emplean?
- *Q5:* ¿Qué disciplinas generan más interacción de los lectores?

A este respecto, a pesar de que el objeto de la investigación pretende centrarse en las ciencias sociales y las humanidades, la recogida y el posterior análisis de los datos también ha estudiado las características de los textos sobre ciencias experimentales y aplicadas, entendiendo que estos

datos ayudan a contextualizar mejor la realidad analizada y a enriquecer los resultados, ya que posibilitan un examen comparado.

2. Metodología

El objetivo de esta investigación ha sido analizar las características de las noticias científicas que se publican en las versiones online de El País (www.elpais.es), The Guardian (www.theguardian.com) y Público (www.publico.pt) y comparar así las similitudes y las diferencias que existen entre España, Gran Bretaña y Portugal. Los tres diarios se encuentran entre los cibermedios líderes de cada uno de sus países, entre los medios de referencia según los datos de Comscore. Para ello, se ha analizado la temática de cada noticia, la sección en la que se publica, el género periodístico empleado, así como la interacción resultante. La muestra de cabeceras para realizar el estudio está formada por las ediciones digitales, todos ellos referentes en sus ámbitos geográficos, y el periodo analizado es el año 2020.

El método empleado es el análisis de contenido, una técnica utilizada de manera frecuente en la investigación sobre los medios de comunicación y también sobre el periodismo científico, y cuyo uso se ha intensificado debido a la mayor disposición de información textual, fundamentalmente a través de internet (Andreu, 2001). Se trata, en efecto, de una técnica que permite analizar los textos de forma sistemática, objetiva y cuantitativa (Wimmer & Dominick, 1996) y que posibilita, mediante los datos obtenidos, realizar inferencias reproducibles y válidas que pueden aplicarse en el contexto (Kippendorff, 1990).

Para extraer la muestra, se optó por la técnica de la semana compuesta, un método avalado en la literatura científica y que establece que para ofrecer estimaciones confiables sobre ediciones periodísticas de un año es suficiente con el análisis de dos semanas compuestas (Riffe et al., 1993). En este caso, se realizó la captura de la muestra durante el primer y tercer trimestre del año 2020, más concretamente, entre los días 27 de enero y 15 de marzo y 22 de junio y 16 de agosto.

Ha resultado necesario concretar cuáles son las cualidades definitorias que se establecen para determinar qué es un texto de ciencia. De cara a este análisis, se han seleccionado aquellas piezas periodísticas que en el titular o en el sumario –si es que lo hubiera- o en el lead, hacen alusión a una investigación o estudio, así como las que tienen como eje las declaraciones u opiniones de actores científicos, a pesar de que estos elementos no sean presentados nominalmente en estos apartados. Es decir, para que una pieza sea considerada de ciencias sociales o humanidades se le ha exigido que cite investigadores o estudios del tema en la cabecera o el lead, a pesar de que la alusión precisa la realice posteriormente en el cuerpo de la unidad informativa.

Como el objetivo ha sido analizar los contenidos de ciencia en su totalidad, indistintamente que estos se incluyesen en las secciones específicas o no, la búsqueda de contenidos ha abarcado todos los apartados presentados en la portada de cada medio.

Para el proceso de registro y la posterior codificación se ha tomado como referencia la nomenclatura internacional de la Unesco para los campos de la ciencia y la tecnología. Esta clasificación, creada en 1973, se ha empleado como guía por muchas organizaciones internacionales y, a pesar de mostrar algunas deficiencias, tales como la obsolescencia o las carencias que representa a nivel de representatividad y usabilidad, sigue siendo un modelo general, estándar y reutilizable (Ruiz-Martínez et al., 2014: 388). Este código clasifica las áreas del saber en 24 campos[1] a los que se ha optado por añadir uno más: ciencias de la comunicación. Esta decisión metodológica responde a la propuesta realizada por algunos estudios (Marzal-Felici et

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[1] Lógica, matemáticas, astronomía y astrofísica, física, química, ciencias de la vida, ciencias de la tierra y el espacio, ciencias agrónomas, ciencias médicas, ciencias tecnológicas, antropología, demografía, ciencias económicas, geografía, historia, ciencias jurídicas, lingüística, pedagogía, ciencia política, psicología, ciencias de las artes y las letras, sociología, ética y filosofía.

al., 2016; García-García, 2007) que inciden en la necesidad de incorporar este campo, que actualmente se encuentra subsumido en otras áreas (Moragas, 2013). Por lo tanto, se han tenido en cuenta un total de 25 campos.

Con estos requisitos, se han registrado un total de 208 piezas en los medios analizados (n=208), con una distribución desigual entre las distintas cabeceras. La página web de Público (www.publico.pt) es la que más contenidos de ciencia ha publicado (45,2%), seguida de la de El País (31,7%) y de la de The Guardian (23,1%).

3. Resultados

Las piezas periodísticas que guardan relación con las ciencias sociales y las humanidades representan el 33,65% del total de textos que integran la muestra, mientras que las ciencias experimentales y aplicadas suponen el 66,35% restante (Figura 1). La cifra varía visiblemente según el medio analizado. (Figura 1). El País es el medio que más artículos ha publicado sobre ciencias sociales y humanidades (40,00%), seguido por Público (37,14%) y, por último, The Guardian (22,85%). No obstante, si se atiende a los porcentajes de estas disciplinas en el cómputo de cada medio, El País sigue siendo el que mayor porcentaje muestra (45,45%), pero detrás se sitúan The Guardian (33,33%) y Público (27,65%).

Figura 1. Presencia de las ciencias sociales y las humanidades en las informaciones sobre ciencia (total y por medio de comunicación).
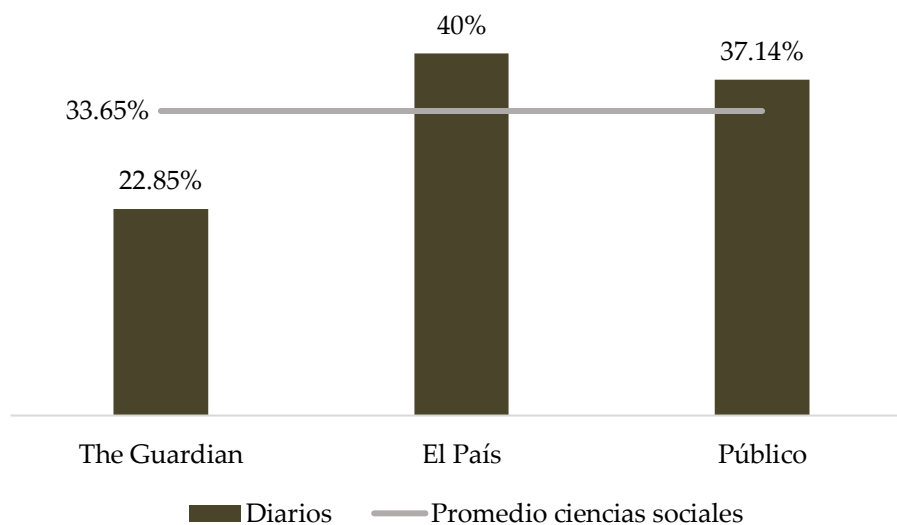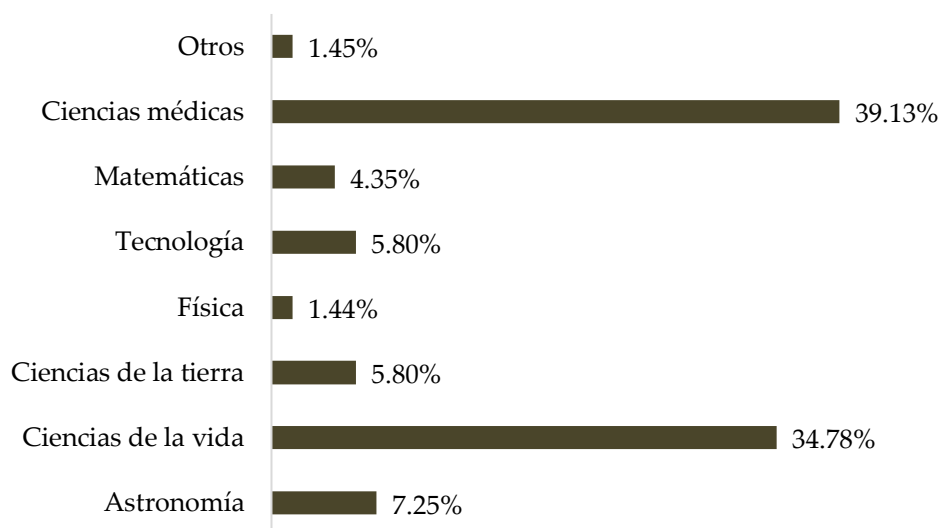

Fuente: Elaboración propia.

Dentro de los temas de ciencias sociales y humanidades (n=70), la historia (17,14%) y la economía (14,29%) son las disciplinas con mayor representación, seguidas de contenidos relacionados con la pedagogía (11,43%) y con el derecho, la psicología y la sociología (Figura 2). En menor medida, la muestra analizada también ha incluido contenidos relacionados con las ciencias de la comunicación, las ciencias políticas y la filosofía, la antropología, el arte y la lingüística.

Figura 2. Presencia de las disciplinas de las ciencias sociales y humanidades (en %).

Urbanismo — 5.71%
Sociología — 8.57%
Psicología — 8.57%
Lingüística — 2.86%
Historia — 17.14%
Filosofía — 5.71%
Educación — 11.43%
Economía — 14.29%
Derecho — 8.57%
Comunicación — 5.71%
Ciencia Política — 5.71%
Arte — 2.86%
Antropología — 2.86%
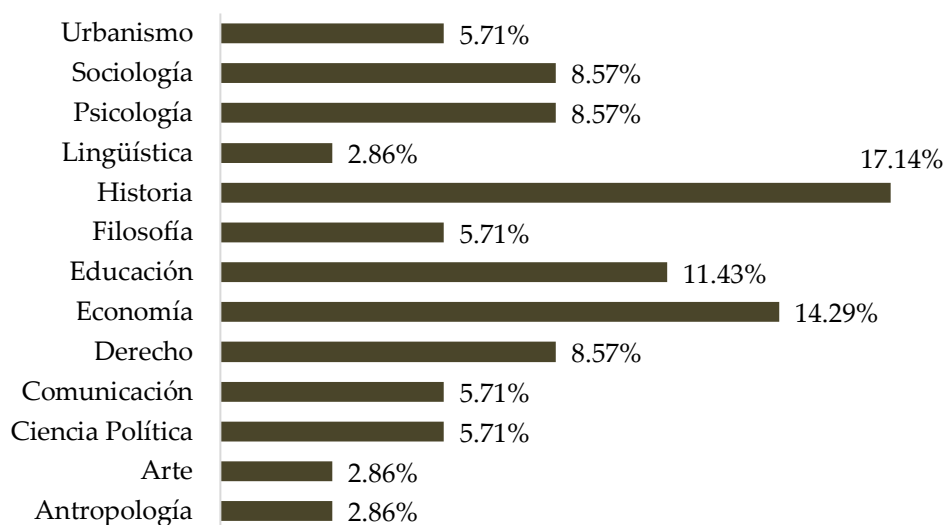
Fuente: Elaboración propia.

En cuanto a las ciencias experimentales y aplicadas, del total de ítems analizados (n=138), sin duda, los temas sanitarios, tanto desde el ámbito de las ciencias de la salud como de las ciencias de vida, son los que más atención reciben, ya que representan el 73,91% de los contenidos dentro de las ciencias "duras" y el 36,50% de todas las unidades analizadas.

Las ciencias de la salud y las ciencias de la vida acaparan la mayor parte de la atención de los medios de comunicación analizados. Les siguen, ya a bastante distancia, la astronomía y la astrofísica (7,25%), las ciencias del espacio y la tierra (5,80%), la tecnología (5,80%), las matemáticas (4,35%) y la física (1,44%) (Figura 3).

Figura 3. Disciplinas de las ciencias experimentales y aplicadas (en %).

Otros — 1.45%
Ciencias médicas — 39.13%
Matemáticas — 4.35%
Tecnología — 5.80%
Física — 1.44%
Ciencias de la tierra — 5.80%
Ciencias de la vida — 34.78%
Astronomía — 7.25%

Fuente: Elaboración propia.

Si nos fijamos en las secciones en las que se publican estas informaciones, los datos indican que los contenidos científicos sobre las ciencias sociales y las humanidades tienen una importante presencia fuera de las secciones tradicionales, es decir, en los distintos suplementos, tanto

dominicales como temáticos. Más de un tercio de los artículos analizados (34,28%) se han publicado en este tipo de apartados. Dentro de las secciones más habituales, Internacional es la que más informaciones engloba (20%), seguida de Ciencia (14,28%), Sociedad (11,43%), Economía (8,57%), Cultura (5,72%), Política (2,86%) y Local (2,86) (Figura 4).

Para valorar esta circunstancia es interesante analizar comparativamente qué es lo que sucede con los contenidos sobre las ciencias experimentales y aplicadas. En este caso, más de la mitad de los contenidos se publican en el apartado de ciencia o aquellas que contienen temas tecnológicos o medioambientales. El porcentaje de contenidos publicados en los suplementos es del 17,39% y detrás se colocan las secciones de Sociedad e Internacional, ambas con un 11,59%.

Figura 4. Secciones en las que se publican informaciones sobre ciencia (en %).
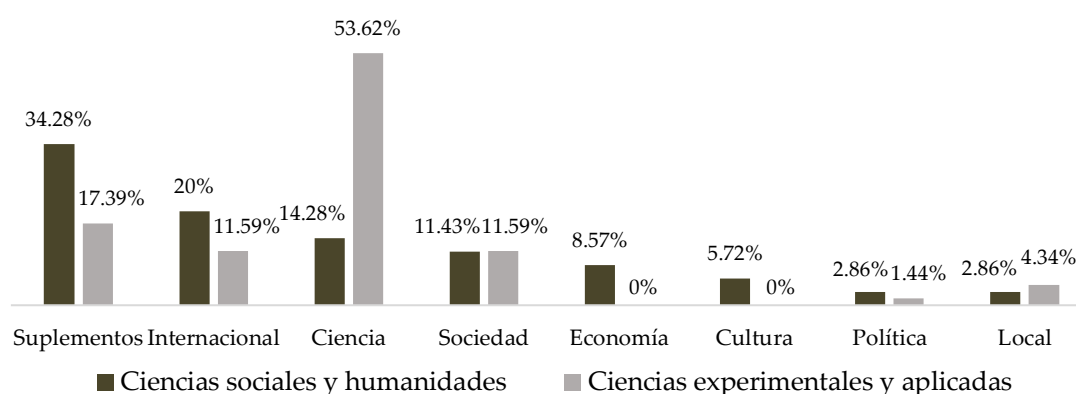
Fuente: Elaboración propia.

Más allá de los datos generales, se aprecian diferencias entre los distintos medios. Público es el medio que, si se tienen en cuenta todas las áreas científicas, registra un porcentaje más alto en la sección de ciencia, ya que casi la mitad (48,93%) de los contenidos de este medio provienen de esta sección. El porcentaje de El País (42,42%) también es significativo, no así el de The Guardian que baja hasta el 20,83%. En este último medio destaca principalmente la sección de Internacional, ya que en ella se incluyen el 45,83% de las informaciones analizadas. Si observamos, las ciencias sociales y las humanidades, el porcentaje de contenidos que se publican en la sección de ciencia baja significativamente y en el caso de The Guardian, ningún contenido de estas áreas se presenta en esta sección específica. El País es el medio que más artículos de ciencias sociales incluye en la sección de ciencia, un 28,58% una cifra que en Público disminuye hasta el 7,69%. En todos los medios el peso de los suplementos es considerable: del 35,71% en El País, 30,70 % en Público y del 25,00% en The Guardian. Destaca, sin embargo, la presencia de estos contenidos en la sección de Sociedad: 15,38% en Público; del 14,28% en El País y del 12,50% en The Guardian.

También se percibe un uso diferenciado de los géneros periodísticos. Si bien, la noticia es el género más empleado en temas sobre ciencias sociales y humanidades, con un 40%, el porcentaje de reportajes y entrevistas es significativo, con un 30% y un 26,70% respectivamente. Mientras tanto, en el área de las ciencias experimentales y aplicadas el porcentaje de noticias es mayor y alcanza el 68,12% (Figura 5). Esta circunstancia se debe principalmente a que en estas últimas áreas predominan las noticias sobre hallazgos científicos, mientras que en el caso de las ciencias sociales es más habitual la alusión a investigaciones e investigadores que valoran o enriquecen los temas a tratar, a pesar de que, tal y como señaló McCall (1988), los medios piden a los científicos sociales generalizar los resultados de su investigación y comentar temas que no han sido abordados en su estudio.

Figura 5. Secciones en las que se publican informaciones sobre ciencia (en %).
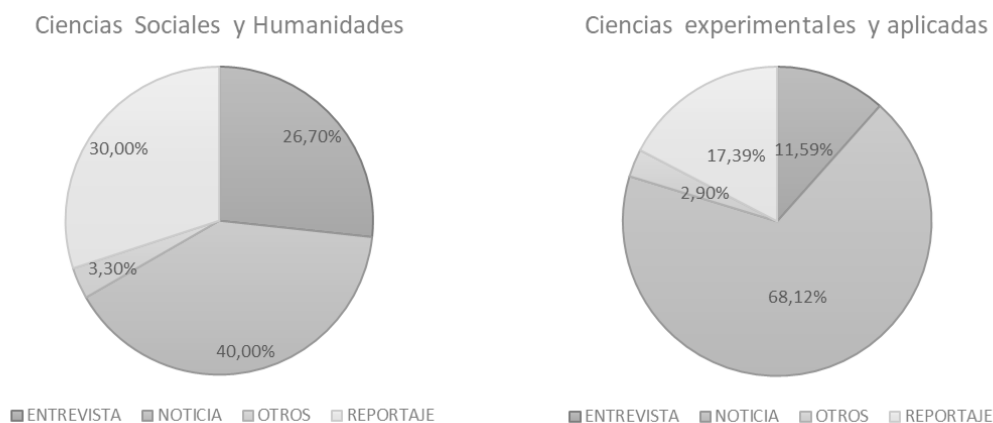
Fuente: Elaboración propia.

Por último, en lo que se refiere a la interacción de los lectores con los contenidos sobre ciencia, el promedio de comentarios ha sido de 8 por cada información. Si nos centramos en las 20 informaciones que más comentarios han logrado, podemos observar que las ciencias experimentales y aplicadas destacan por encima de las ciencias sociales y las humanidades (Figura 6). Además, los temas sanitarios muestran una prevalencia significativa; diez de los veinte temas más comentados se refieren a distintas áreas relacionadas con la salud. Por el contrario, tan solo cinco de los veinte contenidos con más comentarios pertenecen a las ciencias sociales y humanidades. Entre los medios analizados, The Guardian es el medio en el que los lectores más interactúan, con cinco de las seis piezas más comentadas.

Figura 6. Número de interacciones de las noticias más comentadas, por disciplinas (en %).
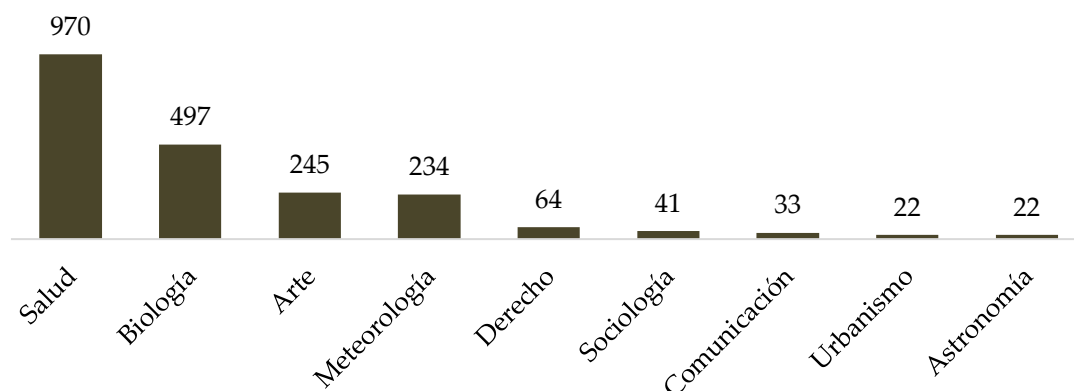
Fuente: Elaboración propia.

4. Conclusiones

El estudio sobre la presencia de las ciencias sociales en tres grandes medios de comunicación de referencia –El País (España), Público (Portugal) y The Guardian (Reino Unido) permite concluir que la presencia de las ciencias sociales y las humanidades entre las informaciones científicas no es tan marginal como señalaban otros estudios (Segado-Boj, 2018). En total, las informaciones que toman como base investigaciones u opiniones de investigadores de estas disciplinas alcanza el 33,65% del total de informaciones sobre ciencia. El reparto por disciplinas

es relativamente disperso, aunque la historia y la economía suman casi una de cada tres informaciones del área, en contraste con otras investigaciones existentes (Cassidy, 2021).

Por medios, la menor presencia en The Guardian puede guardar relación con que la tradicional división entre ciencias "duras" y "blandas" sea más acusada en el ámbito anglosajón y que dentro del ámbito periodístico, incluso, las hayan considerado "garbage science" (Dunwoody, 1984). No obstante, los porcentajes obtenidos en los tres medios obligan a reflexionar y a plantearse la necesidad de ampliar la mirada a la hora de analizar los temas de ciencia en los medios de comunicación.

Es preciso matizar que el año 2020 ha estado fuertemente marcado por la crisis sanitaria del Covid-19 y que este hecho ha marcado también la agenda mediática, en la que los temas médicos han adquirido una gran relevancia, tal y como se ha podido comprobar también en este estudio. Los profesionales de la comunicación han tenido que hacer frente a la dificultad de valorar la situación (Dunwoody, 2020; Catalán-Matamoros, 2020) y, por lo tanto, la presencia de estudios y científicos sanitarios y del área biomédica ha sido importante. Está por ver, si la inclusión de científicos como fuentes autorizadas para valorar los acontecimientos se extiende en el tiempo y a distintos temas, o se trata de tendencia pasajera impuesta por la actual situación marcada por la incertidumbre y la proliferación de noticias falsas sobre la pandemia (Aguado & Bernaola, 2020; Elías, 2020). No obstante, estos datos no hacen más que confirmar la tendencia al alza de los temas médicos (Olvera-Lobo & López Pérez, 2015), una inclinación que algunos autores han descrito como la "medicalización" de las noticias científicas (Bauer, 2003), a pesar de que, en algunos casos estas presenten un componente social y se centren más en los beneficios personales y sociales de la investigación médica, que en las evidencias y características metodológicas de los avances realizados.

En segundo lugar, puede también concluirse que las ciencias sociales también siguen pautas diferentes tanto en lo que a secciones se refiere como a la utilización de distintos géneros periodísticos. A primera vista, las secciones guardan más relación con la presentación de los textos que con su contenido, pero la división de artículos periodísticos en diferentes apartados temáticos también puede tener repercusiones en las particularidades del texto (Olvera-Lobo & López Pérez, 2015) así como en las fuentes empleadas (Segado et al., 2018). Así, las informaciones sobre ciencias sociales se publican más en los suplementos y en un porcentaje menor en las secciones de Internacional, Sociedad, Ciencia y Economía. En oposición, la mitad de los contenidos sobre las ciencias "duras" encuentran su lugar en la sección de Ciencia, lo que sugiere que, a pesar de que en todos los casos se citen estudios o declaraciones de profesionales de la ciencia, se atribuye un carácter más científico a aquellos que se refieren a este tipo de disciplinas. A primera vista, las secciones guardan más relación con la presentación de los textos que con su contenido, pero la división de artículos periodísticos en diferentes apartados temáticos también puede tener repercusiones en las particularidades del texto (Olvera-Lobo & López Pérez, 2015) así como en las fuentes empleadas (Segado et al., 2018).

En cuanto a los géneros informativos, el empleo de entrevistas y reportajes es mayor también en el caso de las ciencias sociales, lo cual podría sugerir que los medios analizados dan una relevancia mayor a este tipo de temáticas. No obstante, el análisis de las informaciones revela que en el caso de las ciencias sociales es más común la alusión a un estudio o a las declaraciones del científico o la científica en calidad de fuente documental o personal que valora o enriquece un tema; en el caso de las ciencias "duras" muchos de los contenidos son noticias sobre la presentación de resultados de una investigación. Por tanto, puede deducirse que los resultados de las investigaciones de las áreas CTIM son considerados más noticiosos, mientras que las investigaciones sociales se utilizan en mayor medida como fuente de autoridad.

Por lo tanto, a la vista de los resultados obtenidos y en relación a la interrogante que plantea el estudio, las ciencias sociales y humanas no están desaparecidas de los medios de comunicación. Quizás, tampoco se puede afirmar contundentemente que estén escondidas, ya que los científicos y las investigaciones de algunas ramas del saber encuentran su espacio en aquellas áreas a las que

se asocian con mayor naturalidad. Ejemplo de ello son los temas relacionados con la economía, publicados, casi sin excepción, en la sección de Economía.

El hecho de que, tal y como se ha indicado, muchas de las piezas sobre ciencias sociales y humanidades se presenten en los suplementos o fuera de las secciones tradicionales, puede guardar relación con el diferenciado tratamiento de las investigaciones en estas áreas, quizás más asequibles para los profesionales de los medios. El tema se presta, por lo tanto, a que futuros estudios analicen la propia esencia de las secciones específicas de ciencia y valorar en qué medida responden a la dificultad de emplazar ciertos temas en las secciones tradicionales o si su desarrollo se corresponde, por lo contrario, con una intención de visibilizar y significar a ciertos temas científicos.

La citada es una de las vías de investigación que abre este estudio, la otra procede, precisamente, de la principal limitación de este estudio, pues no existe una definición unificada acerca de las noticias de ciencia que incluyan a las ciencias sociales o las humanidades, por lo que los distintos estudios que se han centrado en esta cuestión han optado por utilizar una definición creada ad hoc para su desarrollo, lo que dificulta su comparación.

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Research Article

Innovación en la docencia del periodismo a través de la ciencia de datos

Innovation in journalism education through data science

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Resumen: El periodismo de datos moderno nace en 2008 con la confluencia de tres factores fundamentales: los renovados formatos de la Web, con HTML5 y CSS3 a la cabeza, la abundancia de software libre disponible para cada una de las etapas del proceso de investigación con datos y la apertura de portales de datos abiertos de los gobiernos. Para los periodistas uno de los retos fundamentales de este cambio tecnológico ha sido encontrar la formación adecuada. Existen diversas experiencias y enfoques en la educación periodística con datos; en este artículo se examina la docencia del periodismo de datos en España a través del análisis de las propuestas docentes en siete másteres impartidos por universidades españolas.

Palabras clave: periodismo de datos; visualización de datos; ciencia de datos; periodismo; educación.

Abstract: Data journalism was born in 2008 with the confluence of three fundamental factors: the renewed formats of the Web, with HTML5 and CSS3 at the forefront, the abundance of free software available for every stage of the data research process, and the opening of government open data websites. For journalists, one of the fundamental challenges of this technological change has been to find the right training. There are diverse experiences and approaches to journalism education with data; this article examines the teaching of data journalism in Spain through the analysis of teaching proposals in seven master's degrees offered by Spanish universities.

Keywords: data journalism; data visualisation; data science; journalism; education.

1. Introducción

El periodismo siempre ha trabajado con datos. Sin embargo, en los últimos años, han cobrado importancia el periodismo de datos y la visualización de datos, prácticas y metodologías que pretenden hacer inteligibles las grandes cantidades de datos disponibles en la actualidad.

Abordamos en este artículo la innovación docente en esta área y, en concreto, la inclusión de estas asignaturas o asignaturas directamente relacionadas con el periodismo y la visualización de datos en las universidades españolas. Para ello recogemos la información disponible en sus páginas web de los programas de grado o posgrado que abordan estas temáticas. Este artículo pretende mostrar el recorrido seguido por el estado de la cuestión en el aprendizaje formal y

reglado de periodismo de datos en las universidades de España y los debates que se producen a escala internacional.

2. Marco teórico

El periodismo de datos moderno nace en 2008 con la confluencia de tres factores fundamentales: los renovados formatos de la Web con HTML5, CSS3 a la cabeza, la abundancia de software libre disponible para cada una de las etapas del proceso de investigación de los datos y la apertura de portales de datos abiertos de los gobiernos. Es en 2008 cuando se funda Five Thirty Eight y en 2009 el Datablog del The Guardian (Bradshaw, 2017).

Según Rogers (2012) y Gray et al. (2012) el periodismo de datos o periodismo guiado por datos (Data Driven Journalism, DDJ) ha sido definido como el periodismo que se basa en grandes conjuntos de datos. Paul Bradshaw (2010) señala el increíble acontecimiento de 2010 con Wikileaks, una filtración de información de cables diplomáticos de EE.UU. entre los que se incluían datos sobre las guerras de Afganistán o Iraq. Fue la primera y más sonada de las filtraciones de una serie protagonizada por el Consorcio Internacional de Periodistas de Investigación (International Consortium of Investigative Journalists, ICIJ) Luxembourg Leaks y Swiss Leaks, en 2014 y 2015 respectivamente, sobre evasiones fiscales, con dos veces más datos que Wikileaks; Offshore Leaks en 2013, 150 veces más grande; y Panama Papers (ICIJ, 2017) en 2016, más grande que todos los anteriores juntos. Un fenómeno que incluso tuvo su eco en España (Cordobés, 2017).

Desde el principio, el periodismo de datos presenta dos características fundamentes. Por un lado, se trata de una disciplina que se ha ejercido y aprendido sobre la práctica, tomando como referente tanto el periodismo de precisión (Precision Journalism) de Philip Meyer (1991) como las técnicas de periodismo asistido por ordenador (Computer Assisted Reporting) (Meyer, 2002) o cualquier otro documento científico o manual que pudiera aprovecharse y con lentitud se va trasladando a los programas universitarios. Por otro, una convivencia con la visualización de datos entendida desde una doble perspectiva que permite la exploración de grandes volúmenes de datos, pero también que participa de los formatos de salida de los proyectos de periodismo de datos.

2.1. El reto de enseñar periodismo de datos en la universidad

Davies y Cullen (2016) señalaban que se había ido muy lento en la inclusión de estas prácticas en el currículo de la educación en periodismo:

"Ha sido lenta la inclusión de las ideas clave de los pioneros en el plan de estudios de la enseñanza diaria del periodismo. "Mi mensaje para otros interesados en el progreso del periodismo de datos en la academia es que estamos trabajando en ello".

Para revertirlo se propuso realizar una investigación académica que revisara otras publicaciones que hubieran abordado ese tema y una serie de entrevistas a (treinta y cinco) personas del ámbito académico de Australia que le contaran qué estaban haciendo al respecto. La principal conclusión que extrae es que no es la única persona que está preguntándose si la docencia del periodismo de datos se está realizando correctamente y considera que por lo pronto se deberían incluir herramientas y técnicas en el currículo universitario para ayudar a llevar al periodismo de datos en los planes de estudio de periodismo.

El caso de Davies y Cullen (2016) es el de muchos profesores (o colaboradores docentes u otras figuras) que contratan las universidades para llevar esas prácticas novedosas a la formación universitaria y se muestran preocupados por los resultados. Además, en aquella época, Davies consideraba que las características especiales que presenta el periodismo de datos no están cubiertas por periodistas que hayan vivido tanta experiencia como la que la enseñanza de estas materias en su amplio espectro requiere (Hanusch et al., 2016).

En su investigación los participantes coincidían en la necesidad de aumentar las habilidades de los periodistas, pero reconocían que, ante la falta de fondos para que profesionales de amplia experiencia les enseñaran, abogaban por el aprendizaje autónomo, lo cual se enfrenta con la falta de tiempo, la gran cantidad de software para aprender y los distintos enfoques posibles para dominar las diferentes materias. Por el lado de los estudiantes también observa que llegan al mundo del periodismo y la visualización de datos con algunos conocimientos relacionados, pero son tan variados y dispares que resulta difícil encontrar el itinerario correcto. Además, se constata un problema social que denomina de "aversión a las matemáticas", algo que en su opinión debe atajarse de raíz.

De hecho, en su curso de periodismo de datos realizado en 2016[1] propone una dinámica grupal en la primera clase donde confiesan su aversión en grupo y acuerdan convivir con el miedo para superarlo. Según los cuestionarios realizados al final del curso, la experiencia había sido satisfactoria porque, aunque fueran conscientes de haber resuelto mínimamente las complejidades del periodismo de datos de vanguardia, al abordar los temores y trabajarlos desde la raíz se reconocen preparados para una vida de aprendizaje. Uno de los participantes del estudio proponía como forma de superación algo tan simple y tan necesario como una buena guía de los pasos que hay que dar, de los inconvenientes que se pueden encontrar y de los trucos con los que los superaron.

2.2. Distintas estrategias

Esta preocupación ha seguido cobrando el interés por parte de las personas relacionadas con el periodismo y la visualización de datos. El sitio web datajournalism.com, realizado por el European Journalism Center, publicó en agosto de 2019 un artículo titulado "7 countries, 9 teachers: a dossier of data journalism teaching strategies. What are the most effective ways to introduce students to data?" (7 países, 9 profesores: un dossier de las estrategias docentes de periodismo de datos) en el que lamentablemente no se mencionaba el caso de España, pero sí que se apuntaban cuestiones comunes (Heravi, 2018).

El artículo comienza con lo que Davies había señalado como la principal lacra de las personas que trabajan en periodismo de datos, la aversión a las matemáticas, a lo que cabría preguntarse si no habría que añadir "aversión a usar un ordenador" como lo usan los científicos de datos, por ejemplo, lo cual implica como solución, en ambos casos, abrazar un software que suplante la pericia matemática, computacional, algorítmica o de otro tipo para hacer "fácil" el trabajo del periodista de datos, ya sea el de recolectar, extraer, limpiar, investigar o crear gráficos o mapas. Tal como dijo Philip Meyer (1970, 2002) al definir el periodismo de precisión y así se ha ido narrando en la producción científica y literaria del mundo del periodismo de precisión, del CAR (Computer Assisted Reporting, periodismo asistido por ordenador) o del DDJ (Data Driven Journalism, periodismo guiado por datos), para saber encontrar e informar con precisión en las historias (McGregor, 2012) de la actual sociedad de los datos (sociedad de la información), necesitas esos conocimientos.

Paul Bradshaw (2018) señala igualmente en "Teaching Datajournalism slow" que el principal problema con el que cuentan los alumnos de periodismo o los profesionales es la falta de conocimientos matemáticos. En sus formaciones iniciales, en 2010, abordaba un aprendizaje que empezaba por la hoja de cálculo, datos y funciones. Pero en 2016 decide cambiar y comienza con unos datos ya trabajados con los que realizar visualizaciones que "cuenten una historia". Esto le funcionó mejor porque había motivación y resultados inmediatos en "apenas una hora" y consiguió que los estudiantes estuvieran más receptivos para empezar a trabajar con los datos. A la siguiente sesión volvió a la hoja de cálculo y, contrariamente a lo que ocurría en otras ocasiones, ya no se percibieron "operaciones matemáticas" sino "cómo encontrar historias que contar".

[1]Business   and   Data   Journalism,   JOU3209,   Edith   Cowan   University,   Australia. https://www.ecu.edu.au/handbook/unit?id=JOU3209&year=2018

Además, produjo el libro Data Journalism Heist (Bradshaw, 2013) como material docente de apoyo.

2.3. La pirámide invertida del periodismo de datos

El recorrido inicial de la formación y aprendizaje de periodismo de datos fue compilado por de Paul Bradshaw con cinco pasos en forma de pirámide invertida (Bradshaw, 2011):
1. Compile, compilar.
2. Clean, limpiar.
3. Context, contextualizar.
4. Combine, combinar.
5. Communicate, comunicar.

Figure 1. Pirámide invertida del Periodismo de Datos.
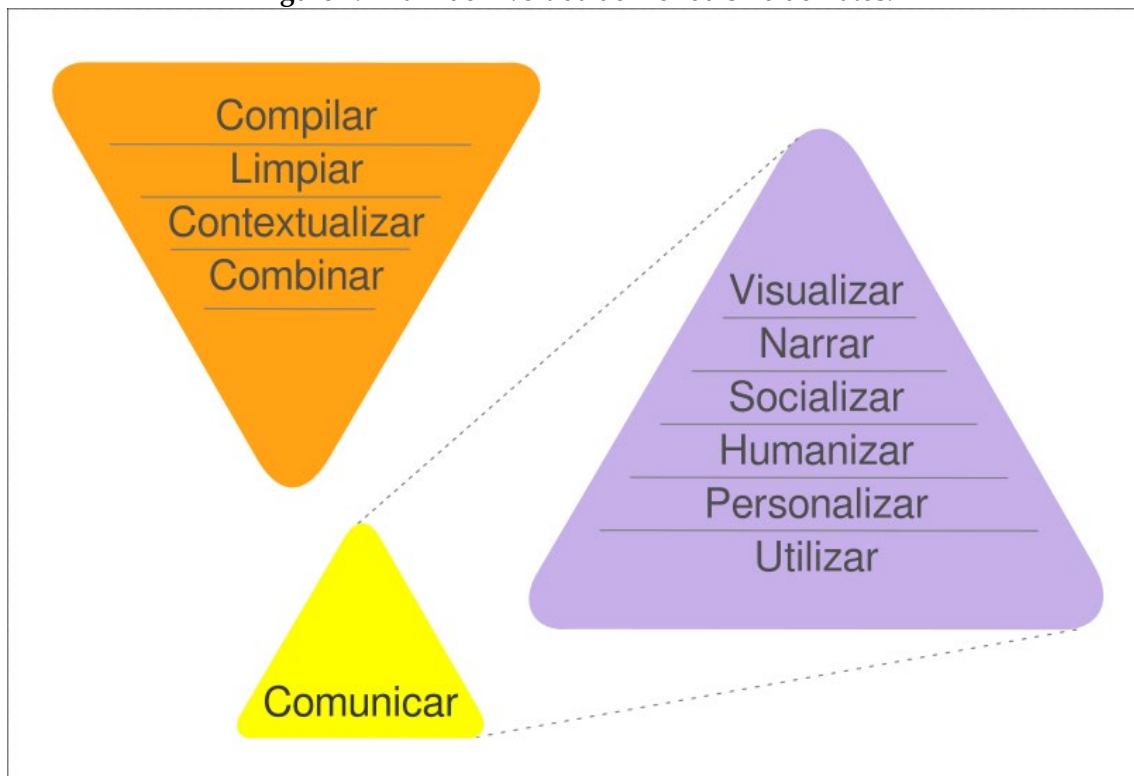
Fuente: Adaptación propia CC-BY-SA basada en original de Paul Bradshaw (2011).

Davies, señala en su estrategia de trabajo (Davies & Cullen, 2016) el hecho de introducir una actividad de interrogatorio de los datos en el primer año les refuerza sus habilidades troncales, lo mismo que entrevistar o contrastar hechos. Mientras que para Nouha Belaid, de la Central University of Tunisia, el principal reto que observa para el lento desarrollo del lento desarrollo del periodismo de datos en su país lo explica con el enigma del huevo y la gallina: sin una educación en datos adecuada no habrá más personas que sepan trabajar con datos y sin personas que sepan trabajar con datos no habrá trabajos que enseñar ni profesionales que enseñen estas prácticas.

Un apunte muy novedoso lo realiza Dr. Reselyn Du de la Hong Kong Baptist University para quien el periodismo de datos es una forma de distinguir a los periodistas, profesionales de la comunicación, de la comunicación que se realiza en el mundo de las redes sociales. Dado que ahora cualquier ciudadano puede, con su teléfono móvil, participar de la difusión y retransmisión de noticias, audios o vídeos, el periodismo guiado por datos cuenta con un valor añadido, una cualidad profesional que se puede asociar al propio ejercicio del periodismo. Tanto es así que

Irene Jay Liu[2] comentaba en 2013 para el Pacific Media Center que el periodismo de datos podía justificar la continuación de la existencia de un periodismo profesional, amenazado por la convergencia mediática, cierres de redacciones o desaparición de medios regionales.

Roselyn realizó una encuesta a 121 estudiantes de su universidad (Yang & Du, 2016) para evaluar las mejores estrategias para el estudio del periodismo de datos y concluyó que, aunque tienen muchas ganar por aprender de datos, no entienden cómo se recogen, analizan o interpretan, no conocen las herramientas para hacerlo y a la mitad de quienes lo conocen les resulta poco atractivo. Es decir, aunque reconocieran la importancia de los datos, la mayoría mostró mínimo interés por adquirir habilidades en el tratamiento de datos, lo cual Roselyn asocia al hecho de no haber desarrollado ese interés desde el inicio de los programas de periodismo. Por tanto, la principal medida que habría que tomar tendría que ser dotar a estos programas de estas materias y considerar la alfabetización en datos como una inversión más que como un coste.

Jeff Kelly Lowenstein de la Grand Valley State University de EE.UU. resume su experiencia docente en seis consejos (Treadwell et al., 2016). El primero es recomendar a los estudiantes que participen en los concursos que organiza la asociación de periodistas y editores de investigación de la asociación de periodistas y editores de investigación, Investigative Reporters and Editors (IRE) ya que muchos de los proyectos que se desarrollan aportan la metodología con la que se han realizado y, por tanto, se pueden replicar o hacer ingeniería inversa con su investigación y puede ser, además, una forma de entrar en contacto con todos esos profesionales y aprender de ellos. El segundo aboga por hacer cosas progresivamente más complejas ya que los pequeños proyectos no han de quedarse pequeños, sino que constituyen la base para mayores y más ambiciosos proyectos. El tercero sitúa el fallo en el centro del aprendizaje, fundamental para aprender y crecer. El cuarto recomienda a los estudiantes se sientan cómodos con los primeros pasos de los distintos saberes y habilidades que han de tener y que vean cómo están interconectados. En quinto lugar, resulta fundamental combinar la paciencia, no perder la perspectiva y pensar en distintas opciones antes de elegir una en concreta. Por último, en sexto lugar, los datos nunca son la historia, sino que lo importante es cómo esas historias afecten a individuos o comunidades.

En Asia central, Anastasia Valeeva, de la American University of Central Asia en Bishek, Kyrgyzstam, apunta un reto que no había previsto inicialmente al formar a profesionales de periodismo de datos y era el hecho de que hubiera otros profesionales de la redacción que entendieran los principios del periodismo de datos de cara a que fueran capaces de trabajar conjuntamente. Por ello resolvieron que había que mejorar la cooperación con otros departamentos universitarios de sociología, estadística o tecnologías de la información para extender el conocimiento sobre el periodismo de datos más allá del propio periodismo.

Por su parte, Bahareh Heravi, del University College Dublin (UCD) de Irlanda, comenta que pese al excepcional posicionamiento de su país en el sector de las tecnologías de la información y del conocimiento, como sede de muchas empresas tecnológicas de la región europea, no ha desarrollado tanto como Reino Unido o Alemania el periodismo de datos. Para elegir el tipo de formación a desarrollar realizó una encuesta durante cinco meses en colaboración con Mirko Lorenz de Datawrapper y otros medios en la que pregunta qué tipo de periodismo de datos se practica para ver qué tipo de estudio se necesita, la "Global Data Journalism Survey" (Heravi, 2018) donde reciben 181 respuestas de 43 países. Luego estudió alrededor de 220 cursos relacionados con periodismo de datos de todo el mundo para concluir que debía realizar un posgraduado en periodismo de datos que denominaron UCD Data Journalism ProfCert[3] en 2017 en el que combinaron periodismo de datos con análisis de datos cuantitativos, estadística y R[4],

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para finalizar con un sitio web del proyecto desarrollado durante el curso[5] y que, en la medida de lo posible, fueran publicados por algunos medios, como el "Personal Injury Claims in Ireland"[6] o "Most dangerous cities for Gardai"[7].

Figure 2. Resultados de la encuesta Global Data Journalism Survey.
Porcentaje de conocimientos en periodismo, análisis de datos, programación, estadística, ciencia de datos, aprendizaje automático y visualización de datos.
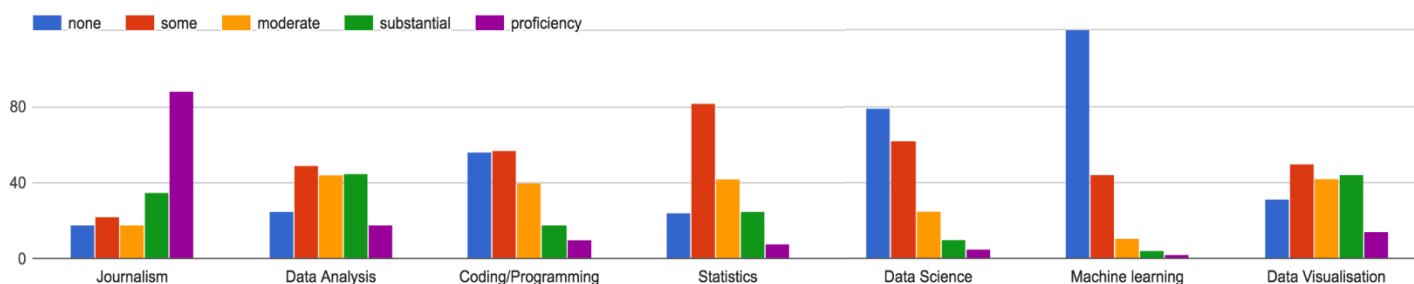
Fuente: Adaptación basada en Heravi (2018).

2.4. La aversión a las matemáticas

Linda Galligan (2013) resume que las matemáticas están menospreciadas en la educación actual lo que supone un problema doble de falta de competencias y de consciencia de ello. Pilar J. López-López (2019) recuerda cuando Bill Kovach y Tom Rosenstiel (2014) afirman que, "en el periodismo de investigación moderno el poder de análisis que permite la informática sustituye a menudo a la observación personal del reportero". López-López (2019) hace un repaso de la oferta de docencia en España relacionada con el periodismo de datos y tan solo encuentra en el "Máster de Periodismo de Investigación, Datos y Visualización" de la UNIR dos asignaturas relacionadas con esta línea, "La búsqueda de datos en el periodismo de investigación: minería de datos", y una optativa, "El periodista como programador". Quizás por ese reflejo en la falta de asignaturas que apuesten por aspectos técnicos propone en el capítulo 7 (López-López, 2019) una guía docente para el periodismo de datos con cinco bloques de los cuales uno se dedica a "Los algoritmos. Los lenguajes de programación". Seguía la línea que marcaba años antes la directora del máster donde observaba que "la oferta educativa española resulta insuficiente en este terreno" (Domínguez, 2014).

Charles Berret y Cheryl Phillips (2016) observaron que el común denominador de los perfiles que se buscaban en periodismo era el de tener experiencia en el trabajo con datos aunque a mayoría de los programas docentes no lo abordaban. Los autores concluían que los estudios de periodismo debían ampliar su temario para abordar las prácticas con datos y ordenadores como habilidades básicas, incorporar el periodismo de datos a estudios en curso y realizar nuevos programas específicos de periodismo guiado por datos.

Otros autores como Anderson (2013) han denominado "periodismo informático" (computational journalism) a los cambios que se están produciendo en las redacciones de los medios para trabajar con algoritmos, ciencias sociales y matemáticas, lo que en EE.UU. conocen como computational journalism o "periodismo informático", que bebe del periodismo de precisión de Meyer (1991) y se desarrolla durante el periodismo asistido por ordenador (Cox, 2000).

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[5]https://newslab.ie/; https://newslab.ie/ddjucd/
[6]https://www.rte.ie/news/investigations-unit/2018/0424/956812-personal-injury-data/
[7]https://newslab.ie/ddjucd/what-are-the-most-dangerous-counties-for-gardai/

2.5. Los datos de España

En España comienza en 2015 el pionero "Máster Propio en Periodismo de Investigación, Datos y Visualización", promovido por Unidad Editorial (El Mundo, Expansión, etc.) y la Universidad Rey Juan Carlos (URJC), con el apoyo de Google y con un equipo de profesionales de reconocido prestigio formado por Antonio Rubio (investigación en El Mundo), Marcos García (periodista independiente) y Mar Cabra, beca Fulbright en EE.UU. y abanderada del periodismo de datos desde el grupo de trabajo de periodismo de datos (GTPD) del centro cultural Medialab-Prado perteneciente al Ayuntamiento de Madrid.

Se producía con este máster una evolución en la formación de periodismo de datos que primero se había realizado de manera informal, no reglada, con actividades del GTPD ue comenzó su andadura en octubre de 2011 consistentes en charlas, talleres, hackatones, barcamps, etc., a un máster en un entorno universitario reglado con una apuesta de varios actores implicados: academia, empresa de tecnologías de la información y empresa informativa.

Luego vinieron dos experiencias muy distintas entre sí, por un lado el "Máster en Periodismo de Investigación, Datos y Visualización" de la Universidad Internacional de la Rioja (UNIR), que copiaba el nombre al primero, y por otro el "Máster de Periodismo de Datos" realizado por el Centro Universitario Villanueva (CUV), adscrito a la Universidad Complutense de Madrid (UCM), ambos desaparecidos. El primero estaba dirigido por Marian Chaparro y coordinado por Juantxo Cruz y destacaba sobre los otros por la apuesta por la validación de ANECA (Agencia Nacional Española de Certificación Académica) y el hecho de ser fundamentalmente en línea.

El máster de URJC ha presumido de haber logrado la empleabilidad de sus alumnos en El Confidencial, La Sexta, La Vanguardia, La Nación (Argentina), haber participado en las investigaciones internacionales Futbol Leaks y Panama Papers, haber obtenido los premios Pulitzer 2017, APM, IPYS, Society for News Design y haber sido finalista de los premios Latam Digital Media.

Otro modelo de formación, el de aprendizaje informal, comienza en 2011 con el GTPD y se mantiene después de la creación del primer máster. El grupo es un compendio de personas de campos muy diversos y se producen algunas conexiones con otros proyectos como la Escuela de Datos (School of Data) de la Open Knowledge Foundation y con otros territorios como Barcelona, Pamplona o Almería. Dos de sus actividades se convierten en referente nacional: los Talleres de Producción de Periodismo de Datos (TPD, 2011-2019) y las Jornadas de Periodismo de Datos y Datos Abiertos (JPD), creadas por Karma Peiró y Mar Cabra. Además, en 2016 empieza el proyecto DataLab (2016-2019) que reúne todas estas actividades y establece múltiples alianzas en el campo de la ciencia de datos o DataScience (Anton, 2020) como por ejemplo el proyecto JournocodersMAD, R-Ladies, Python Madrid, Haskell o Emacs, entre otros.

Las mismas dudas que expresaba Davies y Cullen (2016) sobre el "mínimo tecnológico requerido" fueron compartidas por esta experiencia formativa. Mientras en 2013 y 2014 se trabajaba con herramientas de software que suplían esas carencias sin abordar la problemática de raíz y generando otras dependencias, a partir de 2015 se apostó por las tecnologías abiertas.

3. Recogida de datos

Para este artículo se han seleccionado siete másters y un curso que están en activo en España que parten del periodismo de datos o del periodismo. Se han descartado algunos másters cuyas temáticas podrían estar relacionadas: verificación de datos, visualización de datos o la ciencia de datos porque o bien son más específicos, y por tanto más parciales, o bien no abordan ni mínimamente en su conjunto el periodismo de datos. De algunos másters se han cuantificado todas las asignaturas, por entenderlas parte del recorrido del periodismo de datos, pero de otros se han seleccionado solo las que se consideran en esta disciplina. Por ejemplo, el uso de redes sociales ha quedado fuera porque no se aborda desde el plano de análisis de redes, recopilación

de datos, trabajo con APIs, redes de conocimiento, grafos de conocimiento, análisis de sentimiento o cualquier otra perspectiva técnica avanzada.

3.1. Máster en Periodismo de Investigación, Datos y Visualización

Máster propio en Periodismo de Investigación, Datos y Visualización de la Universidad Rey Juan Carlos (URJC).

Tabla 1. Máster en Periodismo de Investigación, Datos y Visualización.

Número	Módulo	Créditos	Tipo
1	Periodismo de Investigación	9	Obligatoria
2	Periodismo de datos	9	Obligatoria
3	Derecho a saber	9	Obligatoria
4	Visualización de datos	9	Obligatoria
5	Publicación	9	Obligatoria
6	Trabajo Fin de Máster	9	Obligatoria
7	Prácticas remuneradas 6 meses	6	Obligatoria

Fuente: Elaboración propia.

3.2. Máster en Periodismo Digital y de Datos

Máster universitario en Periodismo Digital y de Datos de la Universidad de Nebrija.

Tabla 2. Máster en Periodismo Digital y de Datos.

Número	Módulo	Créditos	Tipo
4	Programación, aplicaciones, herramientas y soportes	6	Obligatoria
9	Fuentes y tratamiento de datos	4	Obligatoria
10	Herramientas digitales para la visualización y presentación de datos	4	Obligatoria

Fuente: Elaboración propia.

3.3. Máster en Periodismo y Comunicación Digital: Datos y Nuevas narrativas

Máster en Periodismo y Comunicación Digital: Datos y Nuevas Narrativas, de la Universitat Oberta de Catalunya (UOC).

Tabla 3. Máster en Periodismo y Comunicación Digital: Datos y Nuevas Narrativas.

Número	Módulo	Créditos	Tipo
1	Periodismo de datos	5	Obligatoria
2	Periodismo de investigación	5	Obligatoria

Número	Módulo	Créditos	Tipo
3	Análisis y visualización de datos	5	Obligatoria
4	Laboratorio de producción audiovisual y transmedia	4	Optativa
5	Técnicas avanzadas de análisis y visualización de datos	4	Optativa
6	Trabajo de Fin de Máster	6	Obligatoria

Fuente: Elaboración propia.

3.4. Máster universitario en periodismo digital y nuevos perfiles profesionales

Máster universitario en periodismo digital y nuevos perfiles profesionales de la URJC.

Tabla 4. Máster universitario en periodismo digital y nuevos perfiles profesionales.

Número	Módulo	Créditos	Tipo
6	Programación web para proyectos periodísticos	3	Obligatoria
8	Periodismo de datos	6	Obligatoria
9	Técnicas de visualización de información web	3	Obligatoria
11	Prácticas externas	12	Obligatoria
12	Trabajo de Fin de Máster	6	Obligatoria

Fuente: Elaboración propia.

3.5. Máster en Periodismo de Datos y Factchecking

Máster en Periodismo de Datos y Factchecking de la Universitat Ramon Llull Blanquerna.

Table 5. Máster en Periodismo de Datos y verificación de datos.

Módulo	Tema	Créditos	Modalidad
1	Introducción al tratamiento de datos	14	Obligatoria
2	Periodismo de Datos Visualización	10	Obligatoria
3	Fact Checking	10	Obligatoria
4	Seminario	5	Obligatoria
5	TFM	9	Obligatoria
6	Prácticas en empresas	12	Obligatoria

Fuente: Elaboración propia.

3.6. Curso de Periodismo de Datos de El País

Curso de Periodismo de Datos de El País y la Universidad Autónoma de Madrid (UAM).
En este caso, dado que se trata de un curso de 96 horas, se ha realizado un ajuste a créditos ECTS.

Table 6. Curso de Periodismo de Datos de El País.

Número	Tema	Créditos	Modalidad
1	Introducción Periodismo Datos	0,5	Obligaroria
2	Datos abiertos	0,5	Obligaroria
3	Estadística	0,5	Obligaroria
4	Hojas de cálculo	0,5	Obligaroria
5	Bases de datos	0,5	Obligaroria
6	Limpieza de datos	0,5	Obligaroria
7	Web scraping	0,5	Obligaroria
8	Visualizaciones interactivas	0,5	Obligaroria
9	Mapas interactivos	0,5	Obligaroria
10	Proyecto final	0,5	Obligaroria

Fuente: Elaboración propia.

3.7. Máster propio UC3M-EFE en Periodismo de Agencia

Máster en Periodismo de Agencia UC3M-EFE.

Table 7. Máster propio UC3M-EFE en Periodismo de Agencia.

Número	Tema	Créditos	Modalidad
4	Periodismo de datos	6	Obligaroria

Fuente: Elaboración propia.

3.8. Máster de Periodismo y Visualización de Datos

Máster de Periodismo y Visualización de Datos de la Universidad de Alcalá (UAH).

Table 8. Máster de Periodismo y Visualización de Datos.

Número	Tema	Créditos	Modalidad
1	Fundamentos tecnológicos	5	Obligaroria
2	Introducción al Periodismo y la Visualización de Datos	5	Obligaroria
3	Organización de la información	5	Obligaroria

Número	Tema	Créditos	Modalidad
4	Medios digitales	5	Obligaroria
5	Adquisición de datos	5	Obligaroria
6	Técnicas de tratamiento de datos	5	Obligaroria
7	Técnicas de ciencia de datos	5	Obligaroria
8	Sistemas interactivos en la red	5	Obligaroria
9	Visualización interactiva	5	Obligaroria
10	Sistemas de información geográfica	5	Obligaroria
11	Trabajo de Fin de Máster	10	Obligatoria

Fuente: Elaboración propia.

4. Resultados

Los tres másteres que alcanzan los 60 créditos en temáticas de periodismo y visualización de datos son los de URJC, Blanquerna y UAH[8]. De estos, los dos primeros son presenciales y el último, virtual[9]. Otros dos, el de UOC y URJC, dedican la mitad de los créditos. Mientras, el de Nebrija dedica una cuarta parte y el de UC3M tan solo un diez por ciento. Este cálculo no puede aplicarse igual al de UAM ya que no tiene la misma duración, aunque sí que realiza un enfoque de superación de la aversión a las matemáticas. De los tres que dedican los 60 créditos cabe destacar, después de haber mirado sus programas docentes, que el de UAH aborda sin complejos los lenguajes de programación y, además, en comparación con el de UAM, emplea solo tecnologías abiertas. Ambos argumentos lo entroncan con la consideración del periodismo de datos como una parte de la ciencia de datos (Antón Bravo & Serrano Tellería, 2020).

Table 9. Iniciativas formativas de Periodismo y Visualización de Datos.

Universidad	Modalidad	Créditos
URJC	Presencial	60
Nebrija	Presencial	14
UOC	Virtual	29
URJC	Presencial	30
Blanquerna	Presencial	60
UAM	Presencial	5
UC3M	Presencial	6
UAH	Virtual	60

Fuente: Elaboración propia.

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[8] https://mpvd.es

[9] Empezó como máster presencial, pero cambió durante la pandemia a 100% virtual.

Para emprender ese camino, el máster de UAH se plantea en los tres primeros módulos introducir el periodismo y la visualización de datos desde las tecnologías que sentaron las bases del CAR. En "Fundamentos tecnológicos" se introduce una herramienta vehicular del máster y trascendental en la relación persona-máquina como es la línea de comandos y, por extensión, las interfaces de línea de comandos. Se pretende con ello sentar las bases para aprender el lenguaje de los nuevos medios (Manovich, 2005). A continuación, se desarrolla el módulo de "Introducción al Periodismo y la Visualización de Datos" donde se hace un repaso a su historia de la materia con el objetivo de conocer los métodos y técnicas del periodismo de investigación, del periodismo de datos y de la visualización de datos. El tercer módulo, "Organización de la información", plantea el control sobre la producción propia de textos y datos. A partir del cuarto módulo y hasta el final se toma en cuenta la taxonomía OSEMN (Mason & Wiggins, 2010) sumado al trabajo desde una perspectiva artística.

5. Conclusiones

Tal como ocurría con los resultados de la encuesta global de periodismo de datos (Heravi, 2018) la mayoría de las apuestas coinciden en apartados del periodismo multimedia, redes sociales o producción web y poco en los conocimientos más técnicos como la programación, estadística, ciencia de datos o aprendizaje automático. Si se abordan, lo hacen a través de aplicaciones informáticas determinadas sin una visión global de conjunto. Esta aversión a las matemáticas extendida al desconocimiento de los principios de la informática hace imposible el desarrollo y explosión esperada del periodismo y la visualización de datos como ha ocurrido en otros países.

Con la perspectiva del tiempo, el programa docente del primer máster de URJC parecía responder a las expectativas que periodistas, profesionales y medios tenían en ese momento, un escenario donde el periodismo de datos se mezclaba con la transformación digital de los medios, con la actualización de sus propuestas y con el aprendizaje basado en herramientas.

Se ha entendido el periodismo de datos, primero, como el uso de datos con un propósito periodístico para encontrar o contar historias de interés (Berret, & Phillips, 2016). Para ello se realiza análisis de datos y su posterior narración, verificación de datos, visualización de datos o creación de aplicaciones periodísticas que ayuden a los lectores a explorar los datos por ellos mismos. En un proceso superior, el conocimiento de algoritmos, el aprendizaje automático y otras tecnologías que puedan para aprovechar la información, estructurada o no, requieren alfabetización digital. Estas cuestiones técnicas que atrajeron, en sus inicios, a los pioneros de periodismo de precisión (Meyer, 1991) y del periodismo asistido por ordenador (Cox, 2000) solo son abordadas por la UAH.

Se pretende también conectar con uno de los problemas detectados en el estudio de Davies y Cullen (2016), el de la presión de producir graduados que puedan trabajar en tareas específicas, normalmente asociadas a plataformas de producción de contenidos muy anquilosadas. En este sentido, se prefieren las apuestas por las estrategias COPE (Jacobson, 2009), APIs de entornos abiertos o de datos vinculados (Antón Bravo, 2013; Simon, 2014; McBride, 2016).

Siguiendo el planteamiento de Lev Manovich (2005), el máster de UAH entiende el trabajo con el ordenador como parte de la historia de la cultura mediática y visual de los últimos siglos y se entronca con el movimiento por el software libre y de código abierto sin servicios de terceras partes.

Agradecimientos

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Anexo I. Enlaces de interés

–   Medialab-Prado, https://medialab-prado.es
–   Primera reunión del Grupo de Trabajo de Periodismo de Datos de Medialab-Prado, https://www.medialab-prado.es/actividades/primera-reunion-del-grupo-de-trabajo-sobre-periodismo-de-datos
–   JournocodersMAD, https://www.medialab-prado.es/programas/journocodersmad
–   ANECA, https://www.aneca.es
–   ICIJ, https://www.icij.org/
–   ADALAB, https://adalab.es/
–   Journocoders, https://journocoders.com/
–   DataLab, https://www.medialab-prado.es/laboratorios/datalab
–   Talleres de Periodismo de Datos, https://www.infotics.es/tags/tpd/
–   Jornadas de Periodismo de Datos, https://www.infotics.es/tags/jpd/
–   Open Knowledge Foundation Network, https://okfn.org
–   Independent Reporters and Editors, https://www.ire.org/
–   Iniciativa Open Source, https://opensource.org/
–   Proyecto GNU, https://gnu.org
–   Datawrapper, https://datawrapper.com
–   Infogram, https://infogram.com
–   School of Data, https://schoolofdata.org
–   Data Journalism, https://datajournalism.com
–   UOC, https://www.uoc.edu
–   Columbia Journalism Review, https://www.cjr.org/analysis/data.php
–   MPVD, https://mpvd.es/articulo/por-que-hacer-este-master/
–   Tableau, https://tableau.com
–   Introducción a Emacs y Orgmode, https://www.medialab-prado.es/actividades/introduccion-emacs-y-orgmode
–   Haskell hoy, https://www.medialab-prado.es/actividades/haskell-hoy
–   Sesión veraniega del grupo de autoaprendizaje de Python, https://www.medialab-prado.es/actividades/sesion-veraniega-del-grupo-de-autoaprendizaje-de-python
–   Manipulación de datos y aprendizaje automático con R en el sector financiero, https://www.medialab-prado.es/actividades/manipulacion-de-datos-y-aprendizaje-automatico-con-r-en-el-sector-financiero
–   Meetup de Journocoders, https://www.meetup.com/es-ES/Journocoders/

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