

New connectivity between audience and mass media: An empirical analysis of interactivity in the Spanish digital press.

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Abstract

Digital journalism is acquiring a certain degree of maturity in the use of interactivity, multimedia and hypertext, although their use is relatively new. In this article we present the results of an empirical study in which the use of various aspects of interactivity is analysed. The study, which attempts to compare the leading Spanish and Catalan digital journals (which have paper versions), analyses four digital newspapers: *El País*, *El Mundo*, *La Vanguardia* and *El Periódico de Catalunya*. We analyse the number and percentage of news items with interactivity and with interactivity in forums; the number and percentage of total comments in forums per day and per news piece; the number and percentage of online interviews per day; and we carry out a comparison of this data with hypertext and multimedia insertions. After the quantitative part of the research, we analyse the technological interactive needs in the digital journals, in addition to the new relationships between the journalist (and newspaper) and the reader, from qualitative point of view. This new alignment of the relation between the journalist and reader may bring about an emotional dimension—through greater empathy, service orientation, connecting with others, organizational awareness, collaboration—to this synergy. We examine whether these steps towards greater interaction (through comments and online interviews) could be extended to social media or social commerce environment, with the aim of guaranteeing the survival and the profitability of digital newspapers.

Keywords: Digital journalism, interactivity, comments, online interview, forum.

1. Interactivity: the central concept of digital journalism

Interactivity is an essential characteristic of digital press, since it allows for closer engagement with the reader. In fact, the functional role played by interactivity can be equated with that of social networks, since the aim is to personalize the users' experience through a new form of QoE (Quality of Experience), which is more genuine and garners greater reader loyalty than the classic QoS (Quality of Service), which has its origins in technology and has been transferred to other business sectors.

Interactivity is seen as central to establishing such close contact with the user. It has been promoted by the European Union¹ and has been defined by a recently developed theoretical framework (Díaz Noci, 2004) that classifies it according to type (inclusive or authorial)², structure (random, fixed, relational, contributory)³, the level of dialogue (symmetric or asymmetric)⁴, temporality (synchronous or asynchronous)⁵, procedure (in the form of dialogue or personalized) and intervention on the part of the news organization (with or without moderation).

The analysis of interactivity in digital journalism is growing due to its importance in the approach taken to produce content. In an empirical study in Catalonia and Spain, comments were seen as the main promoters of participation in digital format newspapers (Fondevila Gascón, 2009a). A comparison of the contents of digital and paper versions in Slovenia revealed gaps in the use of interactivity between the two formats (Oblak, 2005). In Colombia, the public's participation is increasing due to the relationship that is developing between the user and the news outlets through social networks (Castellanos, 2011). Participation has an even more critical role in mobile journalism, where dynamic mobility and connectivity are greater, and the rapid feedback and interaction appear more natural (Díaz and Marrero, 2011). In the case of Mexico, the interactive elements most used between the journalists and readers—as well as those between the news outlet and readers—have been analysed in order to

¹ Content, especially interactive content, forms the core of the *Council Resolution of 19 December 2002, on the contents of interactive media in Europe*. Official Journal C 13, 18-1-2003. In fact, the European Union has always shown constant sensitivity in this respect.

² In inclusive interaction, the reader participates in gathering news content, whereas in authorial interaction, readers are able to participate but take no part in content production.

³ In random structure, the reader does not know the destination of links, since they contain components that take the reader by surprise; in the fixed structure, only the author can modify content via substitutions; in the relational structure, the author edits the content, which reflects the information provided by the reader; in the contributory structure, the author allows the reader to contribute to the content though, for example, forums.

⁴ Symmetrical interactivity is the interactive communication between the author and the reader, or multiple authors with multiple readers; asymmetric interactivity involves just one author and many readers, or vice versa.

⁵ In synchronous temporality, interactivity takes place simultaneously (in the form of online chats or interviews); in asynchronous temporality, interactivity has a more longitudinal character to it, taking place at different times (for example, questions in forums are answered later).

determine the deficiencies in this added-value service and explore options for expanding the use of these new journalistic formats (Lerma, 2009).

However, in an analysis of newspapers in Latin American (Bachmann and Harlow, 2012), the inclusion of interactive webpage elements offers readers limited access to articles and few newspapers there allow readers to report errors, send their own content, or contact the reporters or editors.

The use of interactive tools, for example in online magazines, is conservative in nature. The staid, one-way tradition of the paper versions, and the need for broadband Internet still pose a challenge for interactivity (Goldenberg, 2005). The use of interactivity generates innovative content (Garrand, 2006) in which sound analysis (Cancellaro, 2006) and interactive music media (Ng and Nesi, 2008) play a part.

Intervention by the news outlet is fundamental in the comments on forums and usually takes the form of moderation, with the aim of maintaining the journalistic rigour of the media outlet and avoiding any conflict with regard to the limits of freedom of expression. Some readers prefer posts to be edited, thereby becoming more informative (Light and Rogers, 1999). The moderator is seen as the guarantor for the reader. Even voting, whereby readers vote on other readers comment, is allowed.

Forum comments are one phenomenon generating the greatest changes and newest practices seen in new digital media. For example, a group of online newspapers in the United States started charging readers to make comments on news content in 2010. Readers of the digital version of the *Sun Chronicle* group of newspapers (*TheSunChronicle.com*, *TheFoxboroReporter.com* and *TheSilverCityBulletin.com*) had to make a one-off, lifetime credit card payment of 99 cents. These papers temporarily suspended comments on news stories to ensure that readers used real names and not monikers. In Spain, *Libertad Digital* was the first online paper to make users pay to comment on news items; readers had to send an SMS costing 30 centimes plus tax to sign up⁶.

The producer and distributor of information generates both interactive (in the form of teletext, audiotext, VOD) and consultative (in the form of www, CD-ROM, FTP) traffic (Bordewijk and Van Kaam, 1986). Four dimensions or levels of interaction have been proposed:

- Transmission: unidirectional. Interactivity is basic and allows the viewer simply to switch on and off a broadcast (as is the case in TV).
- Consultation: bidirectional. The user chooses from various options (e.g. teletext).

⁶ The reason for this was not some much to authenticate the readers as to prevent those who, when it was free, would persistently register and try to maliciously exhaust our resources (<http://www.libertaddigital.com/soporte/hdesk.php?action=view&id=127>).

- Conversational: bidirectional and multidirectional. The user is both the sender and receiver of messages (as in emails, forums or chat rooms).
- Moderation: the media outlet monitors the users' information, which may be modified—in both format and content—as a consequence. The format is personalised (commercial web pages, pay-per-view digital newspapers).

Aspects that effect interactivity include lack of time, busy connections, spam or the extremism of certain readers⁷. An analysis of one hundred online newspapers in the United States revealed that there was room for improvement (Schultz, 1999), although the level of interactivity becomes increasingly satisfactory if we go by the results of four Spanish pure player news organizations (*Libertad Digital* and *El Plural*, in Spanish, and *Vilaweb* and *e-Notícies*, in Catalan) (Fondevila, 2009b).

Interaction via mobile devices (mobile journalism) may boost interactivity: The combination of mobility, multiservice platforms and better quality communications and interactivity may lead to a scenario with enormous potential for social commerce.

One feature that could foster interactivity is hypertext (Díaz Noci and Salaverría, 2003; Salaverría, 2005). The disruption of the unidirectional and unilinear nature of the traditional formats gives digital media options to enhance the semantics of content, something that would have previously been unthinkable.

The ability to infinitely connect and supply contents that delve deeper into a particular subject matter opens up new avenues in business analysis (Fondevila, 2010a). One approach to generating income is through the number of visitors to a particular online news website and the numbers of clicks made once there. Strategies for social media and social commerce, such as search engine marketing, search engine optimization and social media marketing, can be devised from the data generated. These long-term strategies tend to monetize content via visits, clicks and conversions and, ultimately, hope to create a community of readers who make some form of purchase. The aim of these e-commerce strategies is monetization, in other words, that the reader clicks through to an advertisement (Google Adwords, Google Adsense) and that the end result is a purchase.

In this scenario—where monetization is essential in order to establish sustainable business models—media companies strive to keep readers. Hypertext that is too exogenous, that is, one that takes traffic to other webpages, runs the risk of

⁷ Other variables studied included the possibility of choosing, the effort required to access information, the level of feedback from the media outlet, the monitoring the use of system, the ease of adding information, the potential for communication between readers, participation by the journalist in the forum, the sophistication of surveys and the possibility of sending emails.

losing readers (clients), and even more so if these webpages belong to competitors. Indeed, various empirical studies carried out on internal links (links that direct the reader to the same media company or publishing group) and external links (ones which lead to webpages not associated with the media company) by the Research Group on Digital Journalism and Broadband demonstrated a clear tendency toward endogamy and a somewhat semantically superficial use of hypertext (Fondevila, 2010b, 2011; Fondevila and Segura, 2012a, 2012b). Furthermore, links are usually found in news reports and analyses rather than opinion sections (Fondevila, 2009a).

Traditionally, there are three types of link—contextual, relational and recommended (Fondevila, 2011). However, in this study, we can add a further: the scientific. These could be considered the most in-depth, since they direct readers to content that covers the subject matter more extensively or promote a greater level of participation by virtue of the contents' high quality.

- Contextual links are those associated with the more traditional six Ws (what, who, when, where, how and why) approach of news reporting. Such content appears either in the lead or the teaser of the online version, imitating, thus, the traditional press.

It is usual to find links to further pages relating to the news item's protagonist, or other related articles written by the same news outlet. A similar process occurs with organizations, political parties or businesses that attract some of the standard 6W questions previously mentioned. The insertion of links to unknown parties is also common practise: If an article contains statistical data or analyses of a large number of entities, businesses or media companies, links to these entities are usually included, allowing the reader easy access to relevant information. Of course, the reader can do the search for him/herself using Google. However, the inclusion of a contextual link saves time. Such an easily incorporated link is attractive in digital journalism, and is seen as a boon in an industry which is frequently short of time. Hence the popularity of these types of links rather than those which are more difficult to incorporate.

- Relational links refer to those questions that arise indirectly from the news content, rather than the more basic 6W questions mentioned above. Thus, such links take the reader though to content covering the build up to the story (irrespective of how far back in time this goes), possible causes or motives and other relevant information. The semantic depth of these links is greater than that of contextual links. Even so, they often fail to satisfy the readers' thirst for information.

- Recommended links are those that direct the reader to documents of greater intellectual interest and which confer a greater semantic value to the content. The inclusion of such a link requires investigation on the part of the content producer. The resources provided by a polysemantic Web help in this respect. A degree of imagination and a capacity for association of ideas are required in order to come up with such links. The specialization in a specific area by the content creator, and methodological tools to create in-depth content (for example, access to market analyses, statistical sources, reports, legislative texts and value-added content) help in this task. Future graduates and media professionals need to be indoctrinated in this respect, and encouraged not to accept the superficial or settle with the first phase of the hypertextual process but to go one step further, since the nature of recommended links can help to encourage participation.
- Continuing with the argument that this tendency toward a more in-depth hypertext will increase, we can add scientific links, which improve on recommended links. Thus, whereas the use of laws and quantitative data is standard practice for recommended links, scientific links take us to preeminent scientific methodology: indexed scientific journals (which are peer-reviewed and have earned credibility from the scientific community) and science blogs (created by research scientists and are scientifically credible). Quantitative and qualitative triangulation is a standard procedure in these types of studies. The inclusion of these types of links represents a challenge for digital journalism: The advanced semantics of scientific links can be viewed as a possible springboard for participation, which, ultimately, is the aim of digital media.

Despite the fact that it is easier to include basics links, building in recommended—and even scientific—links is not as onerous as it would seem. A good strategy on the part of the content creator—including a few minutes spent searching the Internet—would facilitate the inclusion of such links and encourage the reader to participate.

Regarding the trend towards monetization by the digital press, there are various options relating to these more in-depth links. Thus, cross media advertising is feasible if links to the leading companies of the sectors concerned are included in the news items. Used correctly, Google AdSense—which has a privileged ally in the form of the media—can also contribute related advertisements.

Other studies on links incorporated into news items, including those by Deuze (2003), a comparison of Europe and the United States by Quandt (2008), and studies

of Slovenia (Oblak, 2005), Scandinavia (Engebretsen, 2006) and Colombia (Castellanos, 2011), did not discuss the semantic nature of hypertext, which we consider as fundamental to the improvement of content quality (seen as the catalyst to incentivizing the reader to pay) as for encouraging procedures that include e-commerce, for which hypertext and social networks are primary (Ivars, 2012). The impact of hypertext on the various journalistic genres is most noticeable in blogs and newsletters (Fondevila, 2009a) and hypertext reporting (Larrondo, 2009).

A study of Catalan and Spanish online media revealed an endogamous use of links (Fondevila, 2010b); internal links predominated over external as much in online pure players as those outlets with a paper and digital version, with one exception (*Vilaweb*). A greater use of internal links is seen in media outlets with both paper and digital versions (92.08%) compared to the pure players (58.40%). The most likely cause of this is that the former belong to highly diversified multimedia companies with a larger number of associated news outlets. *Vilaweb* is the only pure player in which external links prevail. However, on average, the number of internal links in pure players is lower than that of, say, *elpais.com* and *avui.cat*. Pure players also use external links more than dual version papers. Nevertheless, the hypothesis that internal links predominate over external ones still stands. The amount of embedded hypertext varied and at times reached surprising levels. However, internal links always outnumbered external ones.

In the case of Slovenia, the analysis of hypertext—itsself undergoing maturation—is complex. Links to information in printed editions, other media formats (online radio or television), other public institutions and community websites can be found. Links to other media outlets predominate, ahead of printed editions and public institutions. There are no links that take the reader to community web pages, which may affect the basis of citizen journalism (Gillmor, 2004). Digital media is more often linked to sites with similar content, and again, internal links prevail. In digital versions, only one in five front pages has a link to another web page, and internal links prevail. In Colombia, online newspapers have limited options for micro and macro navigation.

Multimedia also encourages reader participation in digital journalism. Digital newspapers have a range of expressive mediums: text, photos, video, audio and computer graphics. Video, audio and graphics are the factors that differentiate paper and digital press. Exploring the use of audiovisual resources is one of the challenges facing digital media companies. Nevertheless, the use of such resources by digital newspapers is modest, to such an extent that the most used media resource is photography, following the practice of traditional newspapers (Fondevila, 2009a).

Although there is little scientific literature available, one such study by Bachmann and Harlow (2012) on incorporation of multimedia elements in Latin American newspapers observed that online newspapers continue to emulate their printed versions. Nevertheless, all sites analysed offered multimedia of some variety and most have accounts on social networks (Facebook and Twitter). In Colombia, it was noted that writing and photographs still represent the main form of communication of new media (Castellanos, 2011). However, this perpetuation of out-dated modes does not promote interactivity.

Multimedia is transforming journalistic genres, with the appearance of multimedia reporting (Marrero Santana, 2008) or multimedia news (McAdams, 2005). As multimedia practices are refined and new media professionals master these new tools, new genres (like in the movies and other contents) are likely to appear that revolve around a combination of expressive media. Such new genres will further encourage participation and news content gathering by the reader.

The definition of convergence and multimedia is analysed from a management perspective by Fisher (2005) and Frick (2008). Ethier and Ethier (2007) consider multimedia as a necessary feature while Killebrew (2002) views it as a predecessor of convergence. Heller and Womack (2008) discuss these issues from the perspective of the digital designer. A study of the presence of multimedia elements in large audience Spanish digital newspapers over a six-month period (from October 2009 to March 2010), including systems of search and retrieval of their contents, demonstrate an unequal presence of photography, video and graphics. This remained unchanged throughout the period of study, with no increase in multimedia elements seen during the period of study, or any significant change in the quality of multimedia search tools (Guallar, Rovira and Ruiz, 2010).

2. Methodology

The study followed a comparative quantitative and qualitative methodology. The digital newspapers <http://www.lavanguardia.es>, <http://www.elperiodico.com>, <http://www.elpais.com/> and <http://www.elmundo.es> were selected for study according the following three criteria:

1. Territorial, according to the audience reach (comparisons between Spain and Catalonia can be made, by comparing the two Catalan papers—<http://www.lavanguardia.es>, <http://www.elperiodico.com>—and the two Spanish ones—<http://www.elpais.com/> and <http://www.elmundo.es>).

2. Distribution and audience (of the four most-read papers at the time of study, November 2012).
3. Record as a media company (the four expanded into the digital version from the paper version, and are not, therefore, pure players).

Various parameters were evaluated using relational and descriptive statistical analysis, using data collated over consecutive days (n=28 per paper; total, n= 112).

The method involved observing front-page news (no blogs, opinion articles, etc., only news items), every day (Monday to Sunday) and at the same period (13:00 to 15:00) in order to avoid a substitution effect and to standardize the sample.

The data was gathered from various sources, since we are conceptualizing interactivity per se and with regard to hypertext and multimedia, and attempting to establish correlations in the use of these resources and even of the adverts inserted. Thus, the total number of links in a given unit of content was counted. Links were divided into internal (those that link through to the same media outlet or media group) and external (those that connect to other media outlets or media groups). Depending on the semantic level of the link, we counted the contextual links (directly related to the news and covering the 6Ws), the relational links (indirectly related to the news: previous items, similar items), recommended links (which take the reader through to additional articles about the incident covered in the news item; these links are more laborious, but semantically deeper, and relate to statistical information, legislation, amateur blogs) and scientific links (semantically the most in-depth, these link to scientific documentation related to the news item, such as scientific articles, scientific blogs). Regarding interactivity, we counted the number of online comments and interviews, in addition to embedded multimedia (text, photographs, video, audio and graphics). Advertisements—excluding those from the news outlet itself—appearing on the front page were also tallied.

The research hypotheses are:

- H1. The forum comments represent the interactive resource most used by the digital media in Spain.
- H2. Online interviews are rarely used as an interactive resource by the digital press in Spain.
- H3. Advertising in the digital press in Spain is moderate.
- H4. The number of links per unit of content in Spanish digital media is >1.

- H5. There are a greater number of internal links versus external ones in Spanish digital media.
- H6. Contextual and relational links form the largest group of links in Spanish digital media, ahead of recommended or scientific links.
- H7. Text and photographs prevail over video, audio and graphics as multimedia resources in Spanish digital media.
- H8. There is a correlation between the use of semantically deep hypertext and interactivity in Spanish digital media.

3. Results

The results obtained were evaluated using Analysis of Variance (ANOVA) in order to identify statistically significant results with a 95% confidence level. As shown in Table 1, *La Vanguardia*, *El Mundo* and *El País* had similar averages of the number of news items on the front page, with 29.04, 31.00 and 30.68, respectively. These, however, were significantly lower than that of *El Periódico*, with an average of 39.32 (Table 1).

Analysis of forum comments revealed that *El País* had the highest average, with an average of 5,537 comments per day—significantly higher than the others. The paper with the lowest number of comments was *El Periódico*, with an average of 458 comments per day, despite being the paper with the largest volume of news. There are several possible interpretations regarding the number of comments, from a holistic use of hypertext, interactivity and multimedia, to the reader's predisposition, which is more or less loyal depending on the news outlet analysed. The use of interactivity is an essential feature of the digital press, allowing it to establish a close and immediate relation with the readers.

Regarding the number of online interviews, the figures are encouraging, and this is seen across the board. *El Periódico* stands out with a daily online interview; *El País* and *El Mundo* both have 0.36, and *La Vanguardia* 0.29. These high numbers reflect the clear commitment to interactivity and to bringing the reader closer to the journalist and the paper. It is a remarkable result, since it is much higher than previous results. The average of 0.50 interviews per day is an indication of the acceptance of the principles of virtual journalism in the newsrooms of the main Spanish digital newspapers.

Therefore, H1 is confirmed (forum comments represent the interactive resource most used by the digital media in Spain). However, H2 (online interviews are rarely

used as an interactive resource by the digital press in Spain) is not validated as a null hypothesis; indeed, the alternative hypothesis is indicated.

On the other hand, differences are seen between the papers regarding the number of advertisements per day: *El Mundo* has the most advertising on its front page, with an average of 13.14 ads, followed by *El Periódico* with 10.96, *El País* with 10.86 and *La Vanguardia* with 7.96. In relative terms (insertions based on the daily units of content), *El Mundo* maintains the lead with 0.42, followed by *El País* with 0.35, and *El Periódico* and *La Vanguardia* with similar levels of 0.28 and 0.27, respectively. The average number of advertisements (10.73) and insertions per news item (0.33) is moderate. However, it should be borne in mind that the data was gathered within specific period of time, meaning that, if we considered the same steady amount of news over a 24 hour period on the homepage (although with a change of content), the figures for advertising would rise steeply. Therefore, H3 (advertising in the digital press in Spain is moderate) is confirmed, but with this caveat.

Table 1. Number of interactive elements and online interviews in Spanish digital press

	Total	<i>El Periódico</i>	<i>La Vanguardia</i>	<i>El Mundo</i>	<i>El País</i>
Total	112	28 a	28 b	28 c	28 d
Number of front-page news items					
Average	32.51	39.32 bcd	29.04	31.00	30.68
Nº comments					
Average	2,052.3	458	1,343.3 a	870.3	5,537.6 abc
Ratio	63.06	11.64	46.25	28.07	180.49
Nº online interviews					
Average	0.50	1.00 bcd	0.29	0.36	0.36
Ratio	0.01	0.025	0.0	0.011	0.011
Nº front-page advertisements					
Average	10.73	10.96 b	7.96	13.14 abc	10.86 b
Ratio	0.33	0.28	0.27	0.42	0.35

Letters indicate statistically significant differences at 95% confidence.

Ratio: average of each parameter/average of number of front-page news items

Source: the authors

The sample collected shows that the four leading newspapers in Spain have different ratios in the number of links (Table 2). *El País* clearly stands out as the newspaper with the most hypertext, with 110.61 links per day, which is significantly more than in *La Vanguardia* (70.43), and with *El Mundo* (26.18) and *El Periódico* (18.57) a long way behind.

The inclusion of hypertext can be seen as an indicator of press quality, since, in general, it implies more investigative input during content production. In the interests of this quality, newspapers of Grupo Vocento and Grupo Z should make improvements in this area. Nevertheless, with an average of 1.73 links per unit of content, H4 holds (the number of links per unit of content in Spanish digital media is >1).

If we classify links according to their destination, we can see that internal links clearly dominate over external (39.63 internal links per day versus 16.82 external ones). Thus, in descending order, are *El País*—significantly ahead of the others—, *La Vanguardia*, *El Mundo* and *El Periódico*. The same pattern can be seen for external links, although the numbers are lower. There is a notable presence of external links in *El País* and *La Vanguardia*, ahead of the others. Taking this into consideration, we would advocate a greater use of external links, or, at the very least, a minimal use of internal links. Thus, H5 holds (there are a greater number of internal links versus external ones in Spanish digital media).

Table 2. Number of links in Spanish digital press

	Total	<i>El Periódico</i>	<i>La Vanguardia</i>	<i>El Mundo</i>	<i>El País</i>
Total	112	28 a	28 b	28 c	28 d
Number of front-page news items					
Average	32.51	39.32 bcd	29.04	31.00	30.68
Total number of links (total news)					
Average	56.45	18.57	70.43 ac	26.18	110.61 abc
Ratio	1.73	0.47	2.42	0.84	3.60
Internal links					
Average	39.63	12.86	42.00 ac	22.11a	81.54 abc
Ratio	1.21	0.32	1.44	0.71	2.66
External links					
Average	16.82	5.71	28.43 ac	4.07	29.07 ac
Ratio	0.52	0.15	0.98	0.13	0.95

Letters indicate statistically significant differences at 95% confidence

Ratio: average of each parameter/average of number of front-page news items

Source: the authors

With regard to the analysis of the semantic depth of links, we can see that the hypotheses are confirmed: links to less in-depth material—the relational (31.18) and contextual (17.87) links—clearly outnumber those that lead to articles that go into the subject matter into more depth—the recommended (5.41) and scientific (2.04) links (Table 3).

The number of contextual, relational and recommended links seen per day in El País significantly outnumbers those seen in La Vanguardia, El Periódico and *El Mundo*, with *La Vanguardia* above *El Periódico* and *El Mundo*, which have similar levels. Nevertheless, with regard to the scientific links, *La Vanguardia* stands out. Based on these results, we strongly recommend a greater inclusion of hypertext that links to articles that give more in-depth coverage, since this would improve content quality. In summary, H6 is confirmed (contextual and relational links form the largest group of links in Spanish digital media, ahead of recommended or scientific links).

Table 3. Number of links in terms of semantic depth, in Spanish digital press

	Total	<i>El Periódico</i>	<i>La Vanguardia</i>	<i>El Mundo</i>	<i>El País</i>
Total	112	28 a	28 b	28 c	28 d
Number of front-page news items					
Average	32.51	39.32 bcd	29.04	31.00	30.68
Total links (total news)					
Average	56.45	18.57	70.43 ac	26.18	110.61 abc
Ratio	1.73	0.47	2.42	0.84	3.60
Contextual links					
Average	31.18	13.43	29.39 ac	18.36	63.54 abc
Ratio	0.96	0.34	1.01	0.59	2.07
Relational links					
Average	17.87	4.71	26.36 ac	7.64	32.75 abc
Ratio	0.54	0.12	0.90	0.25	1.07
Recommended links					
Average	5.42	0.43	9.61 ac	0.00	11.64 abc
Ratio	0.17	0.01	0.33	0.0	0.38
Scientific links					
Average	2.04	0.00	4.96 acd	0.14	3.07 ac
Ratio	0.06	0.0	0.17	0.0	0.10

Letters indicate statistically significant differences at 95% confidence

Ratio: average of each parameter/average of number of front-page news items

Source: the authors

The inclusion of multimedia elements (Table 4) follows a logical order. Although all news items include text (average = 32.51), the appearance of photography is higher than that of text, with an average of 35.31. Both, however, are higher than that of the average for video (5.74), graphics (1.14) (a somewhat surprising result given that this resource was absent in previous studies) and audio (0.18).

Observing the papers themselves, El País and La Vanguardia, especially El País, make a greater use of photography, with figures significantly higher than El

Periódico or El Mundo. However, in the four newspapers analysed, El *Periódico* stands out for its greater amount of text, with a greater number of news items than the others. The use of video is similar entre El País and El Periódico, which make a significantly greater use of this tool than La Vanguardia and El Mundo. However, graphics and audio are used significantly more by La Vanguardia. As can be seen, El Mundo is poorest performer in terms of its use of multimedia elements. In conclusion, H7 is confirmed (text and photographs prevail over video, audio and graphics as multimedia resources in Spanish digital media).

Table 4. Number of multimedia elements in Spanish digital press

	Total	<i>El Periódico</i>	<i>La Vanguardia</i>	<i>El Mundo</i>	<i>El País</i>
Total	112	28 a	28 b	28 c	28 d
Number of front-page news items					
Average	32.51	39.32 bcd	29.04	31.00	30.68
Multimedia element: text					
Average	32.51	39.32 bcd	29.04	31.00	30.68
Ratio	1	1	1	1	1
Multimedia element: photography					
Average	35.31	31.82c	34.64 ac	16.29	58.50 abc
Ratio	1.09	0.81	1.19	0.52	1.90
Multimedia element: video					
Average	5.74	6.96 bc	5.75 c	3.57	6.68 bc
Ratio	0.18	0.18	0.19	0.11	0.21
Multimedia element: audio					
Average	0.18	0.04	0.50 acd	0.00	0.18
Ratio	0.0	0.0	0.01	0.0	0.0
Multimedia element: graphics					
Average	1.14	0.61 c	3.64 acd	0.07	0.25
Ratio	0.04	0.02	0.13	0.0	0.0

Letters indicate statistically significant differences at 95% confidence

Ratio: average of each parameter/average of number of front-page news items

Source: the authors

Analysis by Pearson's correlation coefficient (a coefficient that measures the linear relationship between two random quantitative variables) shows the relationships between hypertext, multimedia and interactivity (Table 5). Drawing on the whole sample we find various significant correlations at the bilateral level. The following variables show a strong positive correlation:

- The number of links with the number of comments.

- Number of contextual links with the number of relational and recommended links, and the number of comments.
- The number of relational links with the number of recommended links.
- The number of recommended links with the number of scientific links.

The correlation between the number of links and the number of comments is striking. This correlation may be explained in terms of the reader's intellectual discernment: A reader of greater intellectual discernment is more prone to submit comments. If there are more links, the reader will have access to more material to build their case, give more comparative arguments, and have a better holistic view of the subject matter. H8 is, therefore, confirmed (there is a correlation between the use of semantically deep hypertext and interactivity in Spanish digital media).

Qualitatively, these correlations are important in various aspects, starting with placement strategies and engagement by the papers. A considerable increase in the use hypertext would be seen if newsroom and advertising staff recognised that a greater the number of links equates with greater quality, and, by extension, a greater number of readers' comments. All parties would benefit from this: the journalist, who would gain personal satisfaction from producing reports of higher quality; the advertising department, for the increase in visits, greater potential for traditional advertising, as well as advertising through Adwords and Adsense; and the reader, who would benefit from better quality content.

The relationship between the journalist (and the online newspaper) and the readers may experience a quantitative and qualitative increase. It may also take a decisive step towards the creation of a community, seen as a natural step in the evolutionary process currently taking place in the Internet. Indeed, if a greater effort expended in producing content (including multimedia and good quality hypertext) results in a greater following by the reader, it is to be expected that participation, in the form of comments, will increase. Indeed, our results presented here confirm this. The implication of all of this is a closer relationship between the journalist and the reader and, by extension, greater loyalty on the part of the reader, who may be specifically targeted by the newspaper through specialization, or by having a specialized subsection. Such a defined reader profile invariably leads to the creation of a community of readers, à la Internet 3.0, which is currently revolutionizing *e-commerce*, and is seen as essential in ensuring an online newspaper's business strategies.

This engagement between the journalist and the reader has an emotional dimension to it. Empathy, service journalism—with subsequent connections to sources

of financing stemming from e-commerce—and closer contacts are seen to increase through interactivity, which can only take place through hypertext.

As the nature of this relationship—which takes the form of an almost horizontal exchange of contents—intensifies, the journalist assimilates this vital role and becomes more organizationally aware: better content (through a greater amount of semantically deep hypertext and multimedia) implies greater participation, and, therefore, generates a greater potential for revenue through associated *e-commerce*, i.e. a greater access to capital and better outlook for the media organization. The synergy is absolute, and the journalist as an individual becomes part of a collective concept that benefits the journalist as well as the media group.

This integration is reflected in the media outlet's social networks, further reinforcing the holistic nature of what could be termed *heightened participation*: news conveyed through the social networks and e-commerce. However, revenue from *e-commerce* should not set the agenda or the contents' focus. Journalistic independence must be guaranteed. This increased alliance ensures the survival and profitability of the online newspaper.

**Table 5. Correlations between hypertext, multimedia and interactivity
in Spanish digital press.**

		Front- page news items	Total Links	Contex. links	Rel. links	Recom. links	Scientif. links	Multim. video	Nº comments	Front- page ads
Front- page news items	Pear. Corr.	1	-0.096	-0.096	-0.032	-0.127	-.302(**)	0.251(*)	-0.212(*)	0.016
	Sig. (bilateral)		0.316	0.313	0.741	0.182	0.001	0.008	0.025	0.867
	N	112	112	112	112	112	112	112	112	112
Links, total news	Pear. Corr.	-0.096	1	.929(**)	.907(**)	.884(**)	.706(**)	0.172	.710(**)	-.242(*)
	Sig. (bilateral)	0.316		0.000	0.000	0.000	0.000	0.070	0.000	0.010
	N	112	112	112	112	112	112	112	112	112
Contextual links	Pear. Corr.	-0.096	.929(**)	1	.703(**)	.713(**)	.535(**)	0.174	.747(**)	-0.086
	Sig. (bilateral)	0.313	0.000		0.000	0.000	0.000	0.066	0.000	0.365
	N	112	112	112	112	112	112	112	112	112
Relational links	Pear. Corr.	-0.032	.907(**)	.703(**)	1	.855(**)	.693(**)	0.125	.547(**)	-.344(**)
	Sig. (bilateral)	0.741	0.000	0.000		0.000	0.000	0.188	0.000	0.000
	N	112	112	112	112	112	112	112	112	112
Recom. links	Pear. Corr.	-0.127	.884(**)	.713(**)	.855(**)	1	.748(**)	.186(*)	.634(**)	-.324(**)
	Sig. (bilateral)	0.182	0.000	0.000	0.000		0.000	0.049	0.000	0.000
	N	112	112	112	112	112	112	112	112	112
Scientific links	Pear. Corr.	-.302(**)	.706(**)	.535(**)	.693(**)	.748(**)	1	0.127	.337(**)	-.451(**)
	Sig. (bilateral)	0.001	0.000	0.000	0.000	0.000		0.183	0.000	0.000
	N	112	112	112	112	112	112	112	112	112
Multimed. video	Pear. Corr.	.251(**)	0.172	0.174	0.125	.186(*)	0.127	1	0.156	-0.133
	Sig. (bilateral)	0.008	0.070	0.066	0.188	0.049	0.183		0.101	0.162
	N	112	112	112	112	112	112	112	112	112
No. comments	Pear. Corr.	-.212(*)	.710(**)	.747(**)	.547(**)	.634(**)	.337(**)	0.156	1	-0.081
	Sig. (bilateral)	0.025	0.000	0.000	0.000	0.000	0.000	0.101		0.394
	N	112	112	112	112	112	112	112	112	112
No. Front- page ads.	Pear. Corr.	0.016	-.242(*)	-0.086	-.344(**)	-.324(**)	-.451(**)	-0.133	-0.081	1
	Sig. (bilateral)	0.867	0.010	0.365	0.000	0.000	0.000	0.162	0.394	
	N	112	112	112	112	112	112	112	112	112

** The correlation is significant at a level of 0.01 (bilateral)

* The correlation is significant at a level of 0.05 (bilateral)

Source: the authors

4. Conclusion

The results presented in this paper demonstrate a correlation between hypertext and interactivity, between quality of contents and audience feed-back. It means a new way for the journalistic industry to improve its engagement with readers and with advertisers, because the stronger relationship with readers generates more incomes possibilities. And the three analysed variables (hypertext, multimedia and

interactivity) are necessary to find interesting results. The lack of one of them is dangerous for the right achievement of conclusions.

This paper shows an elevated use of hypertext, multimedia and interactivity in the online media in Spain. However, there is room for improvement on several fronts. Despite the fact that the insertion of links (1.73 per unit content) is not insignificant, the majority are internal links, reflecting a level of endogamy within the media—although much of this is due to traffic associated with e-commerce—and, semantically, superficial, with a predominance of contextual and relational links. Further progress towards a widening of the destination of hypertext and a semantic deepening of the links, with more emphasis on the use of recommended and scientific links, is needed.

With regards to the use of multimedia, it is notable that all types (beyond that of text) were widely used, although this varied depending on the particular newspaper (there were some gaps in the use of certain multimedia elements by one of the papers under study). Photography, video, graphics—which showed encouraging data—and audio are routinely used, which invites optimism. Participation was also high: 63 comments per article represent a very high score, as does the data for online interviews (0.50 per day).

Unsurprisingly, correlations are high between links, and between links of differing semantic level. However, the correlation between number of links and the number of comments and, also, between the number of contextual links and number of comments, opens up new avenues. If, over time, this direct correlation between more hypertext and greater participation continues to be seen, the newspaper industry will have found a way to increase reader engagement, and to increase it through commercial channels, including social commerce. The content and commercial strategies used by the digital press can benefit from *heightened participation*, which would result in a greater prospect for survival, adaption and profitability for online newspapers in the 21st century.

5. References

- Bachmann, Ingrid, & Harlow, Summer (2012). "Interactividad y multimedialidad en periódicos latinoamericanos: avances en una transición incompleta". *Cuadernos de Información*, 30, pp. 41-52.
- Bordewijk, Jan, & Van Kaam, Ben (1986). "Towards a new classification of tele-information services". *Intermedia*, XIV, 1, pp. 16-21.
- Cancellaro, Joseph (2006). *Exploring sound design for interactive media*. Thomson/Delmar Learning, Clifton Park, NY.

- Castellanos Díaz, Juliana (2011). “De lo impreso a lo digital la migración de los periódicos impresos de América Latina a los entornos digitales”. *Razón y Palabra*, 77, p. 2.
- Deuze, Mark (2003). The web and its journalism: considering the consequences of different types of newsmedia online. *New Media & Society*, 5, 2, pp. 203-230.
- Díaz Noci, Javier (2004). *Los géneros ciberperiodísticos: una aproximación teórica a los cibertextos, sus elementos y su tipología*. II Congreso Iberoamericano de Periodismo Digital, Santiago de Compostela.
- Díaz Noci, Javier, & Salaverría Aliaga, Ramón (coords.) (2003). *Manual de Redacción Ciberperiodística*. Ariel Comunicación, Barcelona.
- Díaz Rodríguez, Eliane; Marrero Santana, Liliam (2011). “Nuevas fronteras para la participación en red: ciberperiodismo y telefonía móvil en América Latina”. *Telos: Cuadernos de comunicación e innovación*, 87, pp. 35-46.
- Engebretsen, Martin (2006). “Shallow and static or deep and dynamic? Studying the state of online journalism in Scandinavia”. *Nordicom review*, 27, 1, pp. 3-16.
- Ethier, Stephen J., & Ethier, Christine A. (2007). *Digital information management: an essential guide to multimedia*. Upper Saddle River, NJ, Pearson/Prentice Hall.
- Fisher, Holly (2005). “Developing media managers for convergence: A study of management theory and practice for managers of converged newsrooms”. *The Convergence Newsletter*, II, 7.
- Fondevila, Joan Francesc (2009a). “Adaptació dels gèneres periodístics al periodisme digital: estudi empíric comparatiu”. *Trípodos* (Extra 2009-V Congrés Internacional *Comunicació i realitat, La metamorfosi de l'espai mediàtic*, Universitat Ramon Llull), 1, pp. 657-666.
- Fondevila, Joan Francesc (2009b). *Relación entre multimedialidad, hipertextualidad e interactividad en la prensa digital española: análisis empírico*. Congreso Internacional “Sociedad Digital”, Madrid.
- Fondevila, Joan Francesc (2010a). El *cloud journalism*: un nuevo concepto de producción para el periodismo del siglo XXI. *Observatorio (OBS*) Journal*, 4, 1, pp. 19-35.
- Fondevila, Joan Francesc (2010b). “Uso de la hipertextualidad en la prensa digital en Cataluña y en España”. F. Sabés & J. J. Verón (eds.). *El periodismo digital desde la perspectiva de la investigación universitaria. XI Congreso de Periodismo Digital de Huesca-2010*. Asociación de la Prensa de Aragón, Huesca, pp. 183-199.
- Fondevila, Joan Francesc (2011). “Aplicación semántica de la hipertextualidad en la prensa digital en España”. J. J. Verón, & F. Sabés (eds.). *La investigación en*

periodismo digital. Algunos trabajos desde el ámbito universitario. XII Congreso de Periodismo Digital de Huesca-2011, Asociación de la Prensa de Aragón, Huesca, pp. 169-180.

- Fondevila, Joan Francesc, & Segura Jiménez, Herlayne (2012a). "Hipertextuality in digital journalism in Colombia". *Hipertext.net. Anuario Académico sobre Documentación Digital y Comunicación Interactiva* (UPF-Digidoc), 10.
- Fondevila, Joan Francesc, & Segura Jiménez, Herlayne (2012b). "El peso de la hipertextualidad en el periodismo digital: estudio comparativo". *Cuadernos de Información*, 30, pp. 31-40.
- Frick, Tim (2008). *Managing interactive media projects*. Thomson Delmar Learning, Clifton Park, NY.
- Garrand, Timothy Paul (2006). *Writing for multimedia and the Web: a practical guide to content development for interactive media*. Focal Press, Burlington, MA.
- Gillmor, Dan (2004). *We the Media: Grassroots Journalism by the People, for the People*. O'Reilly Media, Sebastopol.
- Goldenberg, Sergio (2005). "La interactividad: el desafío pendiente del periodismo online". *Cuadernos de Información*, 18.
- Guallar, Javier; Rovira, Cristòfol & Ruiz, Sara. "Multimedialidad en la prensa digital. Elementos multimedia y sistemas de recuperación en los principales diarios digitales españoles". *El profesional de la información*, 19, 6, pp. 620-631.
- Heller, Steven; Womack, David, (2008). *Becoming a digital designer: a guide to careers in Web, video, broadcast, game, + animation design*. Wiley, Hoboken, NJ.
- Ivars, Begoña (2012). "Canales alternativos de acceso a la prensa española en internet: la noticia fuera del periódico". *El profesional de la información*, 21, 4, pp. 396-400.
- Killebrew, Kenneth C. (2002). "Culture Creativity and Convergence: Managing Journalists in a Changing Information Workplace". *The Management*, 5, 1, pp. 39-46.
- Larrondo, Ainara (2009). "La metamorfosis del reportaje en el ciberperiodismo: concepto y caracterización de un nuevo modelo narrativo". *Comunicación y Sociedad*, XXII, 2, pp. 59-88.
- Lerma, Laura Alicia (2009). "Implementación del periodismo interactivo en los portales". *Revista Latina de comunicación social*, 64.
- Light, Anne, & Rogers, Yvonne (1999). "Conversation as Publishing: the Role of News Forums on the Web". *Journal of Computer Mediated Communication*, 4, 4.

- Marrero, Liliam (2008). "El reportaje multimedia como género del periodismo digital actual. Acercamiento a sus rasgos formales y de contenido". *Revista Latina de Comunicación Social*, 63, pp. 348-367.
- McAdams, Melinda (2005). *Flash Journalism: How to Create Multimedia News Packages*. Focal Press/Elsevier, St. Louis.
- Ng, Kia, & Nesi, Paolo (eds.) (2008). *Interactive multimedia music technologies*. Information Science Reference, Hershey, PA.
- Salaverría, Ramón (coord.) (2005). *Cibermedios. El impacto de Internet en los medios de comunicación en España*. Comunicación Social Ediciones y Publicaciones, Sevilla.
- Schultz, Tanjev (1999). "Interactive Options in Online Journalism: A Content Analysis of 100 U. S. Newspapers". *Journal of Computer Mediated Communication*, 5, 1.
- Oblak, Tanja (2005). "The lack of interactivity and hypertextuality in online media". *Gazette: the International Journal for Communication Studies*, 67, 1, pp. 87-106.
- Quandt, Thorsten (2008). "(No) news on the World Wide Web? A comparative content analysis of online news in Europe and the United States". *Journalism Studies*, 9, 5, pp. 717-738.

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