

The vision of Google News from the academy: scoping review

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Carlos Lopezosa. PhD. in Journalism from Universitat Pompeu Fabra and visiting researcher at the University of Barcelona (Margarita Salas postdoctoral fellowship). His doctoral thesis focused on studying positioning factors of content-intensive sites, particularly online media, and evaluating SEO analysis tools. He specializes in search engine positioning and monetization systems based on quality content strategies. He has been an associate professor at Universitat Pompeu Fabra, teaching in the Faculty of Communication for the Journalism, Audiovisual Communication, and Advertising and Public Relations programs.

Universitat de Barcelona, Spain
lopezosa@ub.edu
ORCID: 0000-0001-8619-2194



Mari Vázquez. PhD in Social Communication from Universitat Pompeu Fabra and member of the *Centre de Recerca en Informació, Comunicació i Cultura* (CRICC), of Universitat de Barcelona. Lecturer at the Department of Librarianship, Information Science and Audiovisual Communication at the Universitat de Barcelona. She is also the coordinator of the double degree program in Information Management and Digital Documentation + Audiovisual Communication.

Universitat de Barcelona, Spain
marivallez@ub.edu
ORCID: 0000-0002-3284-2590



Javier Guallar. PhD in Library and Information Science from the Universitat de Barcelona and PhD in Communication from Universitat Pompeu Fabra. He is a lecturer and academic secretary at the Faculty of Information and Audiovisual Media, Universitat de Barcelona. As a member of the *Centre de Recerca en Informació, Comunicació i Cultura* (CRICC), he has participated in several funded projects. He serves as the deputy director of the journal *Profesional de la Información* and is the director of the book collections *Profesional de la información* and *EPI Scholar* at Editorial UOC. With extensive professional experience as a press documentalist in the media, his main research areas include content curation, journalistic documentation, audiovisual documentation, social media, digital journalism, and scientific publishing.

Universitat de Barcelona, Spain
jguallar@ub.edu
ORCID: 0000-0002-8601-3990

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Abstract:

Google News is an online news service that collects daily headlines from various news sources and presents them on its homepage in a newspaper-like format. This free service redistributes information from accredited and selected media, making it a valuable source of readership for these media outlets. Google News has been the subject of academic research in several articles examining its effects and relevance. With this premise in mind, the aim of this research was to conduct an exploratory systematic review, also known as a “scoping review,” to examine the body of academic articles published on Google News. The specific objectives were to identify key ideas and major concepts related to Google News, including commonly used methodologies, and to provide evidence-based insights into the present and future effects of Google News. The results of this research offer an overview of scientific studies on Google News and their most significant findings.

Keywords:

Google News; scoping review; digital news media; search engine optimization; digital journalism; SEO; journalism.

Resumen:

Google News es un servicio de noticias en línea que recopila diariamente titulares de varias fuentes informativas y los presenta en la página principal como si fuera un periódico. Este servicio es gratuito y redistribuye información de diferentes medios de comunicación acreditados y seleccionados, lo que lo convierte en una gran fuente de lectores para estos medios. En la investigación académica, Google News ha sido objeto de estudio en diversos artículos que analizan sus efectos y su relevancia. Bajo esta premisa nace esta investigación que lleva a cabo una revisión sistemática exploratoria, también conocida como “scoping review” con la motivación de examinar el corpus de artículos académicos publicados sobre Google News. Los objetivos específicos fueron determinar las ideas clave y conceptos principales relacionados con Google News, incluyendo las metodologías más utilizadas, y ofrecer aportes basados en evidencia sobre Google News y sus efectos presentes y futuros. Los resultados de esta investigación proporcionan una visión general de los estudios científicos sobre Google News y sus resultados más significativos.

Palabras clave:

Google News; scoping review; cibermedios; posicionamiento en buscadores; periodismo digital; SEO; periodismo.

1. Introduction

Google News is a news aggregator that collects daily headlines from hundreds of news sources and organizes them, to some extent, based on each user’s profile. The service is free and devoid of advertising.

Google News serves as a platform for amplifying content from a wide selection of recognized and accredited news outlets. Naturally, this provides the potential for significant increases in reader traffic for the media included in the aggregator.

The academic community has not overlooked Google News, resulting in a substantial body of research published through scientific articles that examine Google News and its impact on the journalism ecosystem from various perspectives.

It is thus appropriate to conduct a review of this scientific-academic body of work in the form of a scoping review, which is an exploratory and systematic review. This research aims to analyze the academic articles published on Google News.

To achieve these goals, the specific objectives are as follows:

Identify and characterize the key ideas and main concepts utilized in research on Google News, including the identification of commonly used methodologies. Additionally, to identify any research gaps or opportunities for future developments.

Provide a synthesis of the current debate on Google News based on the evidence obtained from the analysis.

The SALSA Framework (Hart, 2008; Booth et al., 2012) was employed to fulfill the two specific objectives. This framework facilitates the search and evaluation of academic articles (Codina et al., 2021) as well as the analysis and synthesis of academic papers published on Google News.

2. Theoretical framework

Generalist search engines like Google and Bing, among others, strive to effectively filter news on their search results pages based on user queries. However, the vast amount of information available on the internet has made it increasingly challenging to provide users with the most relevant results (U et al., 2016). Some search engines have developed news-focused services that are not solely dependent on user searches in response to this. Examples include Bing News for Microsoft and Google Discover and Google News for Google.

The focus of this paper is Google News, which serves as a news aggregator collecting thousands of headlines daily from trusted news sources. These headlines are displayed on its homepage, designed to resemble the front page of a newspaper.

This service by Google redistributes news and amplifies its reach, driving additional traffic to the accredited media outlets. Media outlets must apply for admission to appear on Google News, and failure to meet certain requirements can result in exclusion. Websites that publish quality content but lack the concept of a newsroom cannot be part of Google News.

According to Google News (Sullivan, 2019), the service aims to reward independent and original journalistic content. It considers the media or source of origin and uses algorithms to prioritize content placement in its results.

Google News, to a certain extent, amplifies the prominence of major media outlets in each country. Studies have shown that in some countries, the most significant media groups account for 69% of news concentration in Google News (Nechushtai and Lewis, 2019). Analysts generally believe that Google News benefits all media outlets in its database, as it helps increase their audiences and, consequently, their advertising revenue (Colangelo and Tortit, 2018) or subscriber base.

Being part of Google News as a source of information holds value for media companies. On one hand, it sends an estimated six billion clicks per month to publishers worldwide (Patel, 2019). On the other hand, it brings qualified traffic that media companies can try to retain. Approximately 60% of people rely on Google News for information, according to some studies (Wilson, 2016).

However, it's worth noting that the relationship between the media and Google has historically been contentious, experiencing ups and downs since at least 2007.

One of the sources of conflict stems from the fact that Google pages, including Google News, sometimes become the primary source of information for users, bypassing the original sources (Lee and Chyi, 2015; Marcos-Recio et al., 2015). This trend has become more prominent with the Google results page, which tends to extract information from original sources and restricts user access to those sources. Additionally, some users superficially browse the front page of Google News by only reading the headlines and lead-ins without accessing the actual news content on the media outlet's website (Chrysanthos et al., 2016).

This leads to a wide range of challenges, including financial disputes, audience and web traffic concerns, and accusations of oligopoly, among others.

Various countries have experienced notable conflicts in this regard, particularly Spain. In late 2014, a significant controversy arose between news aggregators, search engines, and the media due to the introduction of the AEDE canon or Google tax in January 2015 (Guallar, 2015; Lopezosa 2022). The AEDE canon required Google to pay a fee for its Google News service, which led to the suspension of this service in Spain for eight years.

Since the beginning of 2022, Google News Spain has become active again, making this research particularly relevant.

3. Methodology

To conduct this research and explore the academic perspective on Google News, a systematic approach in the form of a scoping review was employed.

Below, we explain how we obtained the set of documents that was analysed and present the corresponding metrics.

The outcomes of the systematic review facilitated the establishment and substantiation of the theoretical framework, and provided insight into the evolution of academic publications on content curation in the media.

The SALSA Framework (Hart, 2008; Booth et al., 2012; Codina et al., 2021) was utilized to conduct the systematic review (see Table I).

Table 1. Adapted from the SALSA Framework

Application of the SALSA Framework	
Phase	Criteria
<i>Search</i>	Database: Scopus and Web of Science
	Search equation: TITLE ("google news")
	Years of publication: 2002 (year Google News was launched)-2022 (02/08/2022)

<p><i>Appraisal</i></p>	<p>Initial number of documents: 69. Socups 39, WoS 26 Initial number of documents without duplicates: 45 Final number (N) after applying inclusion/exclusion criteria: 33</p> <p>Inclusion/exclusion criteria: omission of false positives, papers had to adhere to the IMRyD or a similar Spanish structure, which entails explicit methodology and presentation of results. Additionally, articles had to be in English or Spanish and primarily focus on Google News, necessitating the inclusion of the keyword “Google News” in the title.</p>
<p><i>Synthesis</i></p>	<p>Through data tables and narrative synthesis</p>
<p><i>Analysis</i></p>	<p>The following components of each item are analyzed:</p> <ul style="list-style-type: none"> - Object of study - Objectives - Questions/ Problems/ Hypotheses - Methodology - Results - Tags (Keywords) - Category (Subject)

Source: own elaboration

The aforementioned framework for data extraction was determined collectively by all authors. One author conducted the data extraction process, while another performed verification. Any discrepancies were resolved through consensus.

Once the set of documents was obtained, the references were analysed using a consistent analysis scheme across all the studies. Following the data extraction and compilation of the final set of documents, the 33 documents were classified using tables and a narrative synthesis centred around the main themes that were identified.

4. Results

This paper provides an overview of the academic research concerning Google News.

Based on the analysis of the set of documents, it has been identified that studies on Google News have primarily addressed the following topics: (1) diffusion, news consumption, and its impact on public opinion, (2) personalization of news, (3) coverage of health-related news, (4) the relationship between Google News and the media, (5) information retrieval and natural language processing, and finally (6) a range of miscellaneous topics that have been categorized as “others” due to their diverse nature.

4.1. Dissemination, news consumption and effect on public opinion

The dissemination of news through Google News, its consumption, and its impact on readers' decision-making processes have been major areas of research in academia since the news aggregator's launch in 2002.

Representative studies have aimed to investigate the geographic coverage of Google News to identify the media sources and types of news featured on its front page. These studies have focused on different case studies, in countries such as the United States and India (Watanabe, 2013), Germany (Schroeder and Kralemann, 2005), as well as Brazil, Colombia, and Mexico (Cobos, 2020; 2021). Additionally, this line of research has provided insights into news reception by analyzing the responses to specific searches in Google News. For instance, some studies have explored the reception of local news (Fischer et al., 2020) or specific search queries like "information search" (Wilson and Maceviciute, 2013).

Likewise, within this significant research area, we can observe studies focusing on the impact of Google News on public opinion and, ultimately, on readers' decision-making processes. Notably, the studies conducted by Du and Song (2022), which investigated the acquisition of information through Google News to determine if its consumption could influence financial decision-making, deserve attention. Another noteworthy work is Young and Atkin (2022), who examined the international news section of Google News to evaluate the agenda settings established by this news aggregator and its effects on readers.

It is worth noting that the research conducted in this extensive area consists primarily of case studies with a clear mixed methodological approach, encompassing both quantitative and qualitative methodologies. For instance, Watanabe (2013) employed content analysis to examine the identified news items, collecting a total of 65,278 news articles every 10 minutes, 24 hours a day, 7 days a week, between February 20 and April 19, 2011. In a similar vein, Cobos (2021) analysed 3,738,375 news items aggregated from the Brazilian, Colombian, and Mexican editions during the period from January to March 2015. Additionally, Schroeder and Kralemann (2005) conducted a study that examined 700 German sources.

On the other hand, Fischer et al. (2020) supplemented their sample with Google Trends and utilized descriptive statistics calculations to analyse the frequency of media terms identified in their dataset. Conversely, Wilson and Maceviciute (2013) utilized Google Alerts over a two-year period (2010-2012) to identify their sample, specifically focusing on 194 news items related to "information retrieval," which were later analysed using content analysis techniques. Similarly, the studies on public opinion and Google News identified in this review adopted a similar methodological approach, involving the identification of data using tools and services such as EDGAR (US-Securities and Exchange Commission SEC service) and Comscore (Du and Song, 2022), as well as the content analysis of headlines and snippets from the Google News world news section for a period of 14 days in November 2019 (Young and Atkin, 2022).

4.2. News customization

Another significant area of research on Google News revolves around personalization. Relevant studies have examined the extent of news personalization facilitated by news search algorithms (Evans et al., 2022). The impact of implicit and explicit personalization on content and source diversity has also been investigated (Haim et al., 2018), along with the assessment of web search personalization levels to determine the risk of users being confined within filter bubbles (Cozza et al., 2016).

Furthermore, studies have explored how web search results in Google News are personalized based on individual users' browsing history (Le et al., 2019).

All of these papers have aimed to examine the personalization of news search and the diversity of news sources within a single research study (Evans et al., 2022). They have analyzed how explicit personalization in Google News impacts the diversity of news presented (Haim et al., 2018), measured the level of personalization in the results provided by Google News to different user types when searching a news dataset (Cozza et al., 2016), and analyzed search results to assess the extent and influence of personalization in Google News (Le et al., 2019).

In general, the studies conducted on news personalization have employed a wide variety of methodologies. The following is a compilation of the most notable approaches we have encountered. Evans et al. (2022) designed a mixed-methods investigation that served as an experiment. They instructed participants to perform four searches: 'Theresa May,' 'Jeremy Corbyn,' 'People's Vote,' and 'Immigration.' All participants were required to complete the survey within the same time frame, specifically between 14:45 and midnight on March 20, 2019. To assess the diversity of recommendations in Google News, the researchers analysed the content of 192 unique articles from the pilot survey to determine their relevance to the search terms.

On the other hand, Haim et al. (2018) conducted an exploratory agent-based test to qualitatively study the effects of news personalization. They created three user accounts in Google News with different online behaviours, considering various topics and main sections of the Google service. The results obtained were analysed to examine the outcomes of these personalized accounts.

Similarly, Cozza et al. (2016) analysed the level of personalization in Google News using the Signal Media One-Million News Articles dataset (<https://research.signal-ai.com/datasets/signal1m.html>), which comprises a variety of news articles from different sources. Their analysis involved a sample of one million articles.

Finally, Le et al. (2019) conducted a comparative analysis of search results. They adapted an audit system to Google News, which allowed them to observe the behaviour of Twitter accounts with opposing political views and analyse the impact of personalization on the search results.

4.3. Health news coverage

One of the major news topics studied on Google News is medical news coverage and its aggregation through the Google service. The main research within this topic focuses on news about the following areas: colorectal cancer (Basch et al., 2022), chiropractic (Al-Azdee et al., 2018), mammography (Young-Lin and Rosenkrantz, 2017), and breastfeeding (Seror et al., 2010).

Each of these studies has its own object of study, but they all revolve around a common axis, which is Google News and the online news related to each central theme of the study. For example, Basch et al. (2022) analysed content related to colorectal cancer screening and prevention in Google News articles published during National Colorectal Cancer Awareness Month (March 2022). Their aim was to investigate the type of content presented in Google News about colorectal cancer.

Meanwhile, Al-Azdee et al. (2018) sought to analyse news published in Google News about chiropractic treatment and stroke to study the unverified causal relationship between chiropractic treatment and stroke.

Likewise, Young Lin and Rosenkrantz (2017) examined news coverage published in Google News about mammograms and their early detection of breast cancer. Their objective was to characterize this coverage and understand the perspective presented in the news regarding this screening technique.

Finally, Seror et al. (2017) investigated whether the melamine in infant formula scandal (news from 2008 that quickly spread on the internet) influenced the decision to breastfeed among the French Chinese community.

In general, for the development of these investigations, case studies focused on the health topics of each investigation were conducted. For example, Basch et al. (2022) analysed 100 English-language news stories collected in March 2022, during National Colorectal Cancer Awareness Month, for their study. Al-Azdee et al. (2018) conducted a quantitative content analysis research using data from January 1 to December 31, 2015, obtained from Google News. They focused on analysing news related to their research topic. Young Lin and Rosenkrantz (2017) conducted a manual review of 100 news stories published in Google News United States over a 9-year period, specifically focusing on the queries related to "mammography."

In contrast, the research by Seror et al. (2017) primarily employed observational methodology. They analysed data collected between May 2008 and April 2009 to measure breastfeeding practices in a hospital located in the Eastern district of Paris. Additionally, they included all patients who gave birth during the same time period (n = 2,304), with 205 of them being from China.

4.4. Google News and its relationship with the media

Another thematic block identified through the scoping review is the relationship between Google News and the media (Cobos, 2018). Specifically, these studies have concentrated on the dichotomy between Google News Spain and the Spanish media (Marcos-Recio et al., 2015; Calzada and Gil, 2020).

Two main lines of work can be observed in the studies. On one hand, there are studies that aim to explore the perceptions and experiences of editors-in-chief, directors, and owners of media indexed in Google News regarding Google News (Cobos, 2018). On the other hand, there are studies that analyse the situation prior to the establishment of intellectual property laws in Spain and similar laws in relation to Google News, and investigate the consequences of their application (Marcos-Recio et al., 2015). This includes the suspension of Google News in Spain and the impact on Spanish online media following the closure of Google News Spain in 2014 (Calzada and Gil, 2020).

The main objective of these studies on Google News Spain was to analyse the situation encountered by the Spanish press after the departure of the aggregator by comparing it with other European countries, such as Google News Germany (Calzada and Gil, 2020). The aim was to gain a comprehensive understanding of the role and impact of news aggregators in the market, examining the differences and similarities across various contexts (Marcos-Recio et al., 2015).

In general, these studies have utilized a wide variety of qualitative and quantitative methodologies. For instance, Cobos (2018) conducted semi-structured interviews with editors-in-chief, directors, and owners of Latin American media to gather valuable insights. Marcos-Recio et al. (2015) conducted a literature review to support their analysis on the consequences of the closure of Google News Spain. Additionally, Calzada and Gil (2020) collected web traffic data and user engagement statistics using the SimilarWeb tool, specifically focusing on the desktop version, to assess the reduction in the percentage of readers following the departure of Google News Spain.

4.5. Google News, information retrieval and algorithms

Other significant Google News research pertains to information retrieval, encompassing controlled vocabularies, algorithms, and various technical aspects in which Google News functions as a tool for developing products and protocols related to searches and search results.

We encountered further studies on machine learning for information filtering and data mining (Montejo-Ráez et al., 2009; 2010), algorithms and natural language processing (Wubben et al., 2010), with some specifically focused on Chinese (Hong et al., 2006; 2009) and Arabic (Alzahrani, 2013), news flow (Das et al., 2007), as well as text mining and social networks mining (Joshi and Gatica-Perez, 2006).

As the dates of the articles indicate, this type of research reached its peak between 2006 and 2013, and there have been no similar studies since then.

Below, we present the chronological development of each of these investigations to provide a more comprehensive view.

Hong et al. (2006) proposed a new statistics-based word extraction scheme that utilizes news categories from Google News to detect newly emerging words in Google's daily news. Their approach successfully expanded the lexicon of Chinese word segmentation systems, enhancing the ability to identify words.

Joshi and Gatica-Perez (2006) discovered and quantified the emerging social network existing among different individuals who frequently appear in Google News. Through this research, they were able to measure the similarities between these individuals within the context in which they appear in the news articles. As a result, they presented a simple model that initially uncovers the topic structure of a set of Google News articles and subsequently identifies groups of interconnected individuals based on the identified topics.

Das et al. (2007) developed a collaborative filtering approach to generate personalized recommendations for users of Google News. They presented the algorithms of a real-time scalable recommendation engine and provided the results of their evaluation on Google News.

Montejo-Ráez et al. (2009) conducted two experiments, one utilizing topic text as data to train a specific classifier, and another constructing the training data from Google News pages.

Montejo-Ráez et al. (2010) employed an approach that utilized Google News as an information source to generate a machine learning corpus for an information filtering task.

Wubben et al. (2010) examined verbal paraphrases by analysing Google News feed headlines, aiming to develop an automatic verbal paraphrase generation system.

Alzahrani (2013) designed and documented a new Arabic news corpus called ArNeCo, aiming to develop a method capable of tracking recent natural language texts published on the Internet using RRSS sources, specifically Google News.

4.6. Others

There are other studies that, due to their specificity and the uniqueness of their topics, could not be classified within a single category. We found studies related to Google News and accessibility for blind readers (Leoporini, 2011), Google News and universities (Herrero-Solana et al., 2014), Google News and user experience (Rovira et al., 2014), and Google News and citizen empowerment (García-García and Gil-Ruiz, 2019), in chronological order.

More specifically, Leoporini (2011) aimed to understand the primary accessibility and usability issues faced by blind individuals when reading news articles. The research concluded that user interaction could be made not only accessible but also satisfactory for those using assistive technologies. The author recommends ARIA-based solutions to achieve a genuinely simplified user interaction for people with disabilities.

Herrero-Solana et al. (2014) examined whether the research capacity of a university influences its presence in digital media. Their study revealed that the universities of Granada, Seville, and Malaga, in that order, were the ones with the highest production and media attention. Thus, the study concluded that greater scientific production corresponds to greater web visibility for a university.

Rovira et al. (2014) examined Google News from the user's perspective to determine the significance attributed by users to elements such as news headlines, lead-ins, and sources, among others. To accomplish this, they utilized an eye tracking tool to analyse the duration of gaze of 50 users while viewing Google News result pages. The findings corroborated, among other observations, that users allocate greater attention to the sources rather than the summaries.

Finally, García-García and Gil-Ruiz (2019) explored digital journalism by examining its current state and its connection with citizen empowerment, as well as thematic trends related to empowerment and ICTs using targeted searches on technology through Google News. Their study confirmed that the most recurrent theme in the collected sample was "Development," followed by topics such as "Internet," "Politics and Governance" and "Security".

5. Discussion and conclusions

This paper provides an overview of academic publications regarding Google News since its inception as an aggregator. Through this research, we aim to highlight the characteristics of this subset comprising 33 studies and to identify the most prominent research areas. Moreover, this study aims to contribute to the existing literature on Google News by offering a comprehensive view of its academic production, which was previously lacking.

The subsequent sections will outline the research objectives and assess their level of accomplishment:

O1. Thanks to the review, we have been able to identify the core ideas and primary concepts in academic discourse surrounding Google News. This has allowed us to observe the major thematic areas of research, the methodologies employed, and other relevant factors. Within this field, we have identified six main research themes: (1) dissemination, news consumption and their impact on public opinion, (2) news personalization, (3) health news coverage, (4) the relationship between Google News and the media, (5) information retrieval and natural language processing, and (6) other miscellaneous topics.

On the other hand, the most frequently employed methodologies primarily consist of case studies and content analysis. Additionally, experimental methodologies are utilized, particularly in studies pertaining to Google News, information retrieval, algorithms, as well as investigations examining the aggregator's effects on public opinion.

O2. After conducting this exploratory systematic review, we can provide evidence-based contributions to the ongoing debate regarding Google News and its current and future impact on academic research. Considering the major blocks identified in this study, it can be concluded that news dissemination through aggregators like Google News is crucial for enhancing web visibility (Cobos, 2022) and influencing agenda setting (Wilson and Maceviciute, 2013; Young and Atkin, 2022). Therefore, conducting studies that integrate web visibility with media agenda is imperative.

It is interesting to note that news personalization in Google News results in a high degree of homogeneity, with major media outlets dominating the search results (Evans et al., 2022). This indicates a general bias, as certain news outlets are overrepresented (Haim et al., 2018). Additionally, there are no significant differences observed in the results between a trained user and a new user (Cozza et al., 2016). However, personalization based on browsing history exists, and empirical evidence of political personalization in Google News has been found (Le et al., 2016). These findings highlight the significant influence that Google News holds as a tool for information personalization and improving web visibility (Lopezosa et al., 2021). Future studies on content personalization could explore the complementary nature of Google services.

Additionally, we have observed that the studies focusing on specific news topics in Google News predominantly revolve around health news. Therefore, it would be intriguing to continue exploring this line of research or expand it to other types of topics where information on a specific subject can have a significant social impact, such as climate change or gender perspective, to mention a few examples.

Studies that explore the intricate relationship between Google News and the media (Cobos, 2018), particularly those focused on the Spanish context (Marcos-Recio et al., 2015; Calzada and Gil, 2020), are once again relevant considering the recent return of Google News after its closure 8 years ago (González, 2022). This resurgence poses new challenges for scholars and researchers in the field of media web visibility. Future research directions may include understanding how media outlets implement their strategies within Google News Spain and adapting the findings of these investigations to the curriculum of communication and information science studies (Lopezosa et al., 2022).

Finally, Google News has demonstrated its potential as a tool for keyword identification in information retrieval with natural language (Montejo-Ráez et al., 2009; 2010; Wubben et al., 2010; Hong et al., 2006; 2009). However, there has been a lack of continuity in this line of research since 2013.

In conclusion, Google News offers ample research opportunities from various perspectives, particularly in relation to the media and news coverage, which can greatly impact the field of communication and information science.

There are several research gaps and opportunities to explore. More evidence is needed regarding the role of Google News in media traffic, with case studies focusing on specific media outlets, areas, or countries. Additionally, there is a lack of academic papers analysing the impact of SEO strategies implemented in newsrooms on visibility and traffic through Google News. Investigating the use of Google News as an aggregator among the public, especially among younger audiences who may be hesitant to rely on traditional media sources, would also be of great interest to understand how they incorporate Google News into their information consumption habits.

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7. Contributions of each author

	Name and surname
Conception and design of the work	Carlos Lopezosa, Mari Vallez and Javier Guallar
Methodology	Carlos Lopezosa
Data collection and analysis	Carlos Lopezosa, Mari Vallez and Javier Guallar
Discussion and conclusions	Carlos Lopezosa, Mari Vallez and Javier Guallar
Drafting, formatting, review and approval of versions	Carlos Lopezosa, Mari Vallez and Javier Guallar

8. Conflict of interest

The author declares that there is no conflict of interest contained in this article.

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