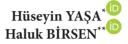
ARAŞTIRMA MAKALESİ / RESEARCH ARTICLE

Seventeen Years of Journalism and Social Media Research: A Bibliometric Analysis

On Yedi Yıllık Gazetecilik ve Sosyal Medya Araştırması: Bibliyometrik Bir Analiz



Abstract

Social media and journalism studies hold a prominent place in the communication field. The growing number of social media users and expanding sphere of influence have riveted scholars to journalism and social media research. Therefore, it is crucial to evaluate the research on the relationship between social media and journalism in mass communication. Against this backdrop, this study aimed to examine social media and journalism-related research in international academic publications using bibliometric analysis to determine its typologies over the years. For that purpose, publications on the relationship between social media and journalism were accessed between January 2007 and June 2023 in journals indexed in SSCI, SCI-Expanded, AHCI, and BKCI-SSH on the Web of Science (WoS) database. The study employed RStudio's "Biblioshiny," developed for bibliometric analysis, and the "VOSviewer" package program. Results indicated a growing number of studies on journalism had the most publications and citations, while "social media" and "journalism" were the most frequently used keywords. Results are expected to illuminate social media and journalism and guide prospective studies on the relationship between the two fields.

Keywords: Communication, Social Media, Journalism, Bibliometrix, Journalism Studies

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Öz

İletişim alanında yapılan araştırmalar içinde sosyal medya ve gazetecilik çalışmaları önemli bir yer tutmaktadır. Özellikle de artan kullanıcısı sayısı ve etki alanı genişleyen sosyal medyayla birlikte gazetecilik ve sosyal medya arasındaki ilişkiyi konu edinen araştırmaların sayısında da önemli oranda artış yaşanmıştır. Dolayısıyla kitle iletişim alanında sosyal medya ve gazetecilik ilişkisini konu edinen araştırmaların genel bir değerlendirilmesinin yapılması önemlidir. Bu araştırmanın amacı, uluslararası akademik yayınlarda yayımlanan sosyal medya ve gazetecilikle ilişkili araştırmaların bibliyometrik analiz tekniği ile incelenmesi ve konuyla ilgili yapılan araştırmaların yıllar içerisindeki tipolojilerinin belirlenmesidir. Bu amaçla, Ocak 2007 yılından 2023 yılı Haziran ayına kadar Web of Science (WOS) veri tabanında bulunan SSCI, SCI-Expanded, AHCI ve BKCI-SSH indekslerinde ver alan dergilerde yayımlanan sosyal medya ve gazetecilik ilişkisini konu edinen araştırmalara ulaşılmıştır. Araştırmada bibliyometrik analiz tekniği için geliştirilen R-studio'nun "bibliometrix" paketinin bir web arayüzü "biblioshiny" ve "VOSviewer" paket programı kullanılmıştır. Araştırma sonucunda, sosyal medya ve gazetecilikle ilgili araştırmaların her geçen yıl arttığını göstermekle birlikte en fazla araştırmaların iletişim alanında yapıldığı görülmüştür. Konuyla ilgili en fazla araştırma yayımlayan ve atıf alan derginin Digital Journalism olduğu tespit edilirken en sık kullanılan anahtar kelimelerin ise sosyal medya ve gazetecilik kelimelerinin olduğu elde edilen bulgular arasındadır. Araştırma sonuçlarının hem sosyal medya hem de gazetecilik alanlarına ve alanların ilişkisiyle ilgili gelecekte yapılacak araştırmalara ışık tutacağı öngörülmektedir.

Anahtar Kelimeler: İletişim, Sosyal Medya, Gazetecilik, Bibliyometrik, Gazetecilik Çalışmaları

Introduction

It is crucial to examine the publications in the fields of disciplines in evaluating their state and presenting specific typologies. This allows us to examine specific periods, compare them, understand the development level in disciplines, and determine the topics mainly studied. Despite the availability of many techniques developed for different disciplines and topics, the bibliometric analysis technique, which is used most frequently, might provide researchers with comprehensive information about the field subject to their research.

Bibliometrics is the application of mathematical and statistical methods to books, journals, and other information media. Widely used in disciplines such as communication, computer, economics, education, and psychology since the 1970s, bibliometrics became a sub-discipline in sociology, history, library, and communication science in the following years (Lee, 2015, p. 17; Pritchard, 1969, pp. 348–349). Bibliometric techniques developed over time continue to grow by adding various criteria, such as counting the articles cited by countries, institutions, and researchers, and counting citations to evaluate the interaction of published research in scientific fields. Indeed, a rise in these criteria provides researchers with more effective and detailed results (Okubo, 1997, p. 9).

This study aims to provide a general framework of the research in the international literature on social media and journalism, which has generally received increasing attention from the past to the present, and introduce specific conceptual structures and developments within the context of research articles. To that end, "journalism" and "social media" were typed as keywords on the WoS database to search for the articles published between 2007-2003 in journals indexed in Social Sciences Citation Index (SSCI),

Emerging Sources Citation Index (ESCI), Science Citation Index Expanded (SCI-EXPANDED), Book Citation Index – Social Sciences & Humanities (BKCI-SSH) and Arts & Humanities Citation Index (AHCI). The data collected from the 4687 research articles were analyzed through bibliometric analysis using "biblioshiny," a web interface of Rstudio's "bibliometrix" package and VOSviewer package program.

Recently, bibliometric research conducted in different disciplines has gained popularity. Within the current study's limitations (2007-2023), no research exists on the relationship between social media and journalism at the international level. However, studies on the relationship between social media and journalism conducted with different indexes, keywords, methods, and techniques at the international (Segado-Boj, 2020) and national levels (Kubilay & Ova, 2020) have supported and confirmed this research. An evaluation from this perspective also reveals the study's originality in terms of the topic, universe, sample, methods, and techniques employed. Therefore, this research will bridge the literature gap and guide and facilitate relevant research for prospective researchers.

Literature Review

Social Media and Journalism/News

Social media offers new opportunities to the field of journalism and journalists practicing this profession. Such opportunities as the interactivity of social media environments, providing access without temporal and spatial constraints, creating a platform for individuals of all ages and cultures to freely express their feelings and thoughts within the peripheral limits, providing current, easy, fast, and inexpensive access to news, and eliminating the boundaries between news producers and consumers provide journalism and journalists with considerable gains.

A combination of interactive tools that change the news habits of individuals and offer the opportunity to disseminate information in different ways through virtual environments, social media has become a significant means for journalists to perform various journalistic activities for news gathering, public opinion discovery, and news reporting (Acharya et al., 2012, p. 4). The growing popularity of journalism in social media might be attributed to its use by politicians, celebrities, activists, governmental and non-governmental organizations, along with being an effective tool for organizing political campaigns (Marwick & Boyd, 2011).

A study on journalists' use of social media sources (Knight, 2012) concluded that social media environments caused specific changes in news gathering and production. Additionally, journalists use social media in all processes that might include themselves and the news production stage, such as promoting their own news or news organizations (Molyneux & Holton, 2015; Molyneux et al., 2018; Jouët & Rieffel, 2015), searching for current news (Schifferes et al., 2014; McGregor & Molyneux, 2020; Hermida, 2010; McGregor, 2019), finding sources (White, 2012; Artwick, 2014; Bullard, 2015; Broersma & Graham, 2013; Heravi & Harrower, 2016; Lasorsa et al., 2012; Hermida et al., 2014; Mercier, 2013; Lecheler & Kruikemeier, 2016), interacting with readers/viewers (Lasorsa et al., 2012; Sheffer & Schultz, 2010), new motivation, creative and tactical potentials that it brings to collective news actions (Yanık & Batu, 2019, p. 183), learning target audience feedback (Taşkıran & Kırık, 2016, p. 216), and enriching it by supporting it with more attractive, understandable, and visual elements in line with user feedback (Yaşa, 2024, p. 528), and verifying user-generated content or news (Heravi & Harrower, 2016; Brandtzaeg et al., 2016; Zhang & Li, 2020; Hermida, 2012, Rauchfleisch et al., 2017).

Social media have nationally (Paulussen & Harder, 2014, p. 545) and locally (Lysak et al., 2012, p. 187) become a rich, easy, and inexpensive means of gathering and disseminating news and interacting with readers/viewers (Broersma & Graham, 2012, p. 187) for journalists, media organizations, and news agencies (Kürkçü, 2016, p. 473). Despite its complexity, social media offers considerable opportunities to reach new readers/viewers, increase the number of visitors, share content independently of corporate policies, discover the trends of news consumers, catch up on breaking news, and follow the latest developments (Zubiaga, 2019, pp. 1–2; Phuvipadawat & Murata, 2010, p. 120; Lewis & Molyneux, 2019, pp. 2580–2581).

Journalists controlled almost everything, including news identification, collection, filtering, production, and distribution (Singer et al., 2011, p. 27). However, this has changed with the emergence of social media environments. Social media might now be a channel where journalists are stripped of some of their power and control over news production and distribution (Lewis & Molyneux, 2018, p. 14). Accordingly, it has almost eliminated the role of editors mediating between news producers and consumers (Kuyucu, 2020, p. 82).

With social media, journalistic practices that redefine the ways of reporting news and interacting with audiences, and where unidirectional feed has evolved into a bidirectional one, have challenged the traditional understanding of mass communication. Users' ability to instantly provide feedback regardless of time and place, establish trust in the journalism-audience relationship, and share, discuss, and contribute to news instantly, mutually, and actively through multimedia (photo, video, text, audio) has changed the uniformity of traditional methods. (Adornato, 2021, pp. 6–7; Hermida et al., 2012, p. 817; Yaşa & Şen, 2024, p. 561). Social media can, therefore, represent not only a technological phenomenon but also a participatory cultural phenomenon in which users feel enabled and encouraged to participate in media creation and circulation (Lewis, 2012, p. 853; Jenkins, 2006; Gulyás, 2017, p. 396).

Relationships established by researchers between social media and journalism are, in fact, essential to revealing specific discussions in both fields. Interactions between journalists and users on social media platforms reveal the nature of the environments and the structure of the processes in these environments. This interactional structure between social media and journalism can thus yield positive and negative outcomes. In addition to news production and distribution processes, viewers/readers, journalists, and social media users these positive or negative situations might also impact news institutions, organizations, and societies that support and have a specific degree of relationship with them.

Research Methodology

Research Aim and Research Questions

Since the research aims to determine the typology of studies on social media and journalism, the research questions in Table 1 were addressed to achieve this goal:

Table 1

Research Questions

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	RQ1. What trends and features characterize research on social media and journalism?
(A)	RQ1.1. What is the subject of research related to social media and journalism?
	RQ1.2. What is the distribution of research on social media and journalism by years?
	RQ2. What are the theoretical foundations of research on social media and journalism?
	RQ2.1. Who are the researchers who have published and cited the most research?
	RQ2.2. What is the distribution of researchers conducting research on social media and journalism by country?
	RQ2.3. What are the journals that publish the most studies and receive the most citations, and what are the
(B)	impact factors of these journals?
	RQ2.4. What is the Distribution of research on social media and journalism according to the journals in which
	they were published?
	RQ2.5. What are the institutions and organizations that publish the most research on social media and
	journalism, and where are the most cited researchers located?
	RQ3. What are the interactions, progress, and trends in research on social media and journalism?
	RQ3.1. What is the distribution of trending topics related to social media and journalism by year?
(C)	RQ3.2. What is the periodic analysis of keywords of authors related to social media and journalism?
	RQ3.3. What is the thematic development of social media and journalism-related research?
	RO4. How has the historical citation analysis of social media and journalism related to research evolved?

General Background

The study employed bibliometric analysis, one of the qualitative and quantitative analysis methods. Offering the opportunity for qualitative and quantitative examination of scientific studies, it is an effective technique that enables academic outputs to be revealed by analyzing existing documents and research trends in specific fields. Although the technique is employed in various disciplines, such as social sciences, history, documentation, etc., it has riveted attention with databases that can easily access analysis techniques and become a frequently preferred technique in different fields (Okubo, 1997, p. 9; Shi & Li, 2019, p. 1; Zupic & Čater, 2015, p. 430).

Sample of the Research

"R bibliometrix"³ package and "VOSviewer"⁴ software were used for bibliometric analysis. The reason for using two different programs is the need for another program if one does not suffice to obtain the data required for the research. All data were therefore accessed and visualized with both programs. Research on "social media" and "journalism" published in the WoS database was analyzed, trends on the subject were identified, and certain interpretations on the current situation and suggestions for future research were presented. The research data in the WoS database was obtained on June 25, 2023, and 4687 research articles published between 2007 and 2023 were examined with the bibliometric technique.

³ Bibliometrix, an open software developed by Aria and Cuccurullo (2017, p. 959), uses a web interface "biblioshiny" of the "bibliometrix 3.0.3" package of R-studio run in R language.

⁴ Within the scope of the research, "VOSviewer" software, free of charge and open to public use, was used to access bibliometric analyses and visualize the results. VOSviewer is a software that allows creating and visualizing bibliometric networks (Van Eck & Waltman, 2017, p. 1054).

Data Analysis

Specific keywords were determined to identify the topics related to social media and journalism, and the significance of researchers in the field, and "social media" and "journalism" were thus searched. Typing these keywords yielded 5282 studies in the WoS database. Data results were later limited to "articles" in English published in the SSCI, ESCI, SCI-EXPANDED, BKCI-SSH, and A&HCI indexes to reveal the quality (impact) of the journals within the framework of their relationship with the research topic. Following these search limitations, the total number of articles accessed in the indexes was 4687. In addition, bibliometric information, such as "author," "title," "country," "source," "citation," "journal," "university," "year of publication," "category," and "keyword," was exported from the WoS database.

Findings

This section presents the tables, visuals, and interpretations based on the data obtained using the "R bibliometrix" package and "VOSviewer" software. In this context, general information about studies and researchers in social media and journalism was initially imparted. The following data were then ascertained and interpreted: (i) research fields on social media and journalism, (ii) distribution by year, (iii) researchers with the most studies and citations, (iv) distribution of researchers by country, (v) journals with the most studies and citations, and their impact factors, (vi) distribution of research according to the journals in which they were published, (vii) the institutions and organizations where researchers with the most studies and citations were recruited, (viii) three area graphs about researchers, keywords, and journals, and (ix) the keywords and links used in research.

Table 2

General Statistics of Research on Social Media and Journalism

General statistics	Research on social media and journalism		
Timespan	2007-2023		
Sources	1018		
Documents	4687		
Annual Growth Rate	%43,93		
Authors	6898		
Authors of single-authored docs	974		
International Co-Authorship	%24,43		
Co-Authors per Doc	2.56		
Author's Keywords (DE)	9568		
References	150319		
Document Average Age	3.82		
Average citations per doc	15.57		

The topic of social media and journalism related research was used in 4687 studies and 1018 sources between 2007 and 2023, with an annual growth rate of 45.93%. 6898 researchers researched

"social media and journalism," and the international collaboration rate of researchers was 24.43%. In addition, a total of 150319 references were used in 4687 articles. 974 articles were single-authored, with an average of 15.57 citations per article. Other statistical data for the study are presented in Table 2.

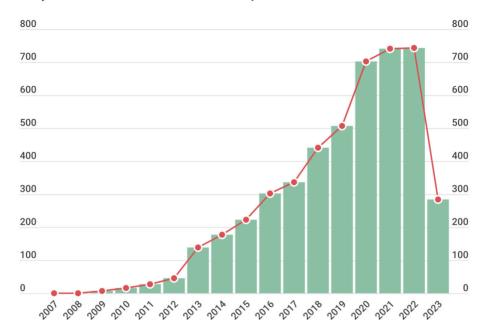
Fields of study	Ν	%	
Communication	3120	66.454	
Business	290	6.177	
Information Science Library Science	286	6.092	
Political Science	204	4.345	
Sociology	202	4.302	
Psychology Multidisciplinary	188	4.004	
Social Sciences Interdisciplinary	176	3.749	
Public Environment Occupational Health	175	3.727	
Computer Science Information Systems	121	2.577	
Cultural Studies	111	2.364	
Film Radio Television	111	2.364	
Psychology Experimental	108	2.300	
Social Issues	76	1.619	
Environmental Sciences	72	1.534	
Education Research	68	1.448	
Health Policy Services	66	1.406	
Accommodation Leisure, Sports Tourism	61	1.299	
Health Sciences Services	60	1.278	
Manage	55	1.171	
Environmental Studies	51	1.086	
Medical Informatics	47	1.001	
Field Studies	46	0.980	
Interdisciplinary Applications in Computer Science	40	0.852	
Psychology Social	38	0.809	
Psychology Clinical	37	0.788	

Table 3

Fields of Study on Social Media and Journalism

Table 3 displays the bibliometric analysis findings of 4687 articles on social media and journalism in the WoS database, created according to the determined parameters. Social media and journalism were studied as joint study topics in 136 different scientific fields. Only 25 of the 136 different fields are shown in Table 3. It is also observable in Table 3 that most research on social media and journalism (n=3120) was conducted in the "communication" field.

Distribution of Research on Social Media and Journalism by Years



The distribution of studies on social media and journalism by year reveals that the first study in the international literature was conducted in 2007. A rise has been observed in the number of studies on the topic after 2012. While 2022 ranked first with an overall 744 studies, 2021 ranked second with 741 studies, 2020 ranked third with 703 studies, 2019 ranked fourth with 507 studies, and 2018 ranked fifth with 441 studies. In this context, breaks were observed in 2012 and 2020 in the studies that started in 2007.

As Figure 1 illustrates, research on social media and journalism has started since 2007 (n=1), with the first study being "*Emerging Trends in Online Advertising*" by Boone et al. (2010). Focusing on trends in online games, social media, journalism, and online advertising, the study examined the significance of search engine marketing, contextual advertising in media, behavioral targeting, social marketing, and video advertising. In addition, Arciuli et al. (2008) conducted a study titled "*The use of applied drama in crisis management: an empirical psychological study*" in 2008 (n=1). The study did not directly establish the relationship between social media and journalism, but tackled the understanding of role-based participation in dramatic scenarios and decision-making in specific situations. Additionally, the information about the issues related to social media and journalism in the literature was provided by focusing on topics such as exercise, effective communication, critical analysis of information, and individual differences. Earlier studies included no research directly on the relationship between social media and journalism has been established since 2009.

Table 4

Researchers with The Most Research Publications and Citations

Researchers with the most publications	Ν	%	Most cited researchers	Ν	Number of citations
King-wa Fu	38	0.811	Edson C. Tandoc Jr.	23	2163
Homero Gil de Zúñiga	27	0.576	Alfred Hermida	16	1761
Hsuan-Ting Chen	26	0.555	Seth C. Lewis	22	1743
Jayeon Lee	26	0.555	Homero Gil de Zúñiga	15	1662
Edson C. Tandoc Jr.	26	0.555	Marcel Broersma	11	1017
Seunghyun Kim	24	0.512	Amber Willard Hinsley	1	1011
Francis Lap Fung Lee	24	0.512	Teresa Correa	2	1011
Seth C. Lewis	24	0.512	Avery E. Holton	13	967
Emily K. Vraga	24	0.512	Kjerstin Thorson	17	955
Li Chen	22	0.469	Hsuan-Ting Chen	26	946

The top 10 authors who conducted the most research on social media and journalism, according to the WoS database, are shown in Table 4. With 38 studies, King-wa Fu was the researcher with the most publications. Of all the studies he conducted on his own and with other researchers, King-wa Fu's most cited research was "*Chinese social media reaction to the MERS-CoV and avian influenza* A(H7N9) outbreaks" (Fung et al., 2013).

Edson C. Tandoc Jr. researched social media and journalism and received the most citations from other researchers. The author's 23 studies received 2163 citations in total. Findings also indicated that three of Edson C. Tandoc Jr.'s studies on the topic, both his own and co-authored, were not cited at all. *"Defining fake news: A typology of scholarly definitions"* by Edson C. Tandoc Jr., in collaboration with Zheng Wei Lim and Richard Ling received 979 citations. Published in 2017, the study provided specific findings concerning social media and journalism within a direct relationship with fake news (Tandoc et al., 2018).

Figure 2

A bibliometric Network Analysis of the Distribution of Researchers Conducting Research on Social Media and Journalism by Country

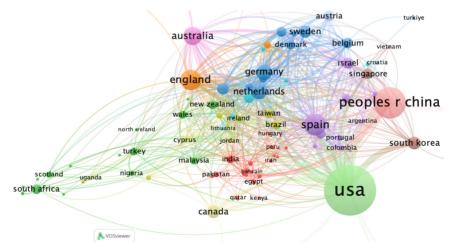


Figure 2 shows the bibliometric network map of the countries where researchers researching social media and journalism live. The network map illustrates that scholars researching the subject were from 109 different countries, and the country with the highest number of publications was the United States of America (USA). The researchers in the USA published a total of 2032 studies and received a total of 41673 citations until 2023. Of the 4687 research articles analyzed within the scope of the study, 47 were published by researchers in co-authored or single-authored research in Turkey. These studies were cited 101 times. Of these studies, the one by Kara et al. (2020) titled "*Using social media to support teaching and learning in higher education: An analysis of personal narratives*" received the most citations (n=16). The journal in which the researchers published their research is indexed in ESCI, is in the Q2 quadrant in the field of "computer science applications" and "education," with an impact factor of 0.776 in the last two years (2022-2023).

Table 5

Title of journal	Number of publications	Impact factor of journals (2022- 2023)	Title of journal	Number of journals cited
Digital Journalism	268	6.847	Digital Journalism	6509
Journalism Practice	179	2.328	Computers in Human Behavior	6055
Social Media + Society	174	4.636	New Media & Society	4483
New Media & Society	157	5.31	Journalism Practice	3692
Journalism	124	3.194	Journalism Studies	3248
Journalism Studies	118	3.604	Social Media + Society	2598
Computers in Human Behavior	105	8.957	Journalism	2351
Journalism & Mass Communication Quarterly	90	3.431	Public Relations Review	2186
Information, Communication & Society	88	5.054	Journalism & Mass Communication Quarterly	2144
Public Relations Review	83	4.636	Information, Communication & Society	1820

Journals with The Most Publications and Citations and Their Impact Factors

Table 5 provides information about the top 10 most-cited journals and journals that publish the most research on social media and journalism and their impact factors. Data revealed that 4687 research articles were published in 1018 different journals. Among these journals, *Digital Journalism* published the most studies (n=268), receiving 6509 citations. Indexed in SSCI, the journal is in the Q1 quadrant in the field of communication. Additionally, *Digital Journalism* received the highest number of citations (n=6509) among 1018 journals. It was established that the journal's publications on social media and journalism (n = 268) were cited 6509 times.

A Bibliometric Network Analysis of the Distribution of Research on Social Media and Journalism According to the Journals They were Published

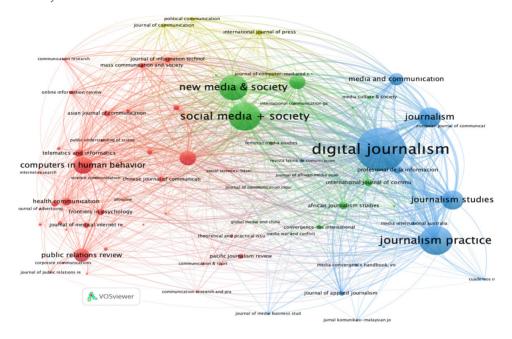
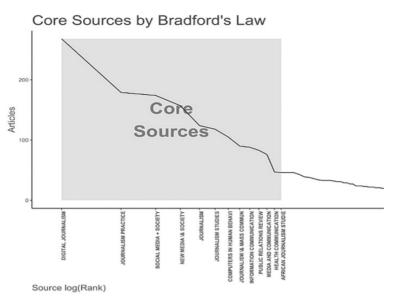


Figure 3 displays the colored visual network analysis in the VOSviewer program of the journals where social media and journalism research are most frequently published using the scientific mapping analysis technique (Van Eck & Waltman, 2009). As illustrated in Figure 3, within the framework of the research topic, circle sizes indicate how many publications were made in the journals, lines between the circles indicate the relationship between journals, and same color circles indicate the citation frequency of the studies between the journals.

Figure 4 shows the distribution of journals in terms of the number of publications according to Bradford's law, which is significant for determining the core journals in a particular field. Proposed by Samuel C. Bradford in 1934, Bradford's law manifests the distribution of literature on a particular topic within journals. The law postulates that a small core group of journals covering one-third of the research on a particular topic is observable. While this group of journals constitutes Zone 1, the journal group in Zone 2 is larger than the first, comprises more journals, and forms the remaining one-third. Included in the final third and referred to as Zone 3, the last field pertains to the research in the field in a much larger number of journals (Bradford 1948, p. 86; Garfield, 1980, p. 477).

Distribution of Journals in Terms of Number of Publications According to Bradford's Law



According to Bradford's law, 15 journals were in Zone 1 and were the most influential sources on the research topic. Besides, 98 journals were in Zone 2, and 905 were in Zone 3. The top 13 journals are shown in Figure 5, with the journals in Zone 1 constituting 1.47% of the total journals (n=1018), journals in Zone 2 comprising 9.62%, and those in Zone 3 representing 88.89% of the total.

Figure 5

Institutions and Organizations of Researchers with the Most Citations and Publications on Social Media and Journalism

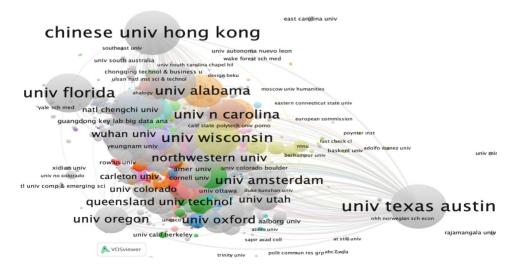


Figure 5 displays the institutions and organizations of researchers publishing research on social media and journalism. The studies analyzed within the study's scope were published by researchers from 2130 institutions. The university with the highest productivity related to social media and journalism was the Chinese University of Hong Kong (n=144), followed by the University of Texas at Austin (n=143) and the University of Florida (n=114). Analyses revealed that 114 research articles from Hong Kong Chinese University were cited 2680 times, followed by 5074 citations to the 143 research articles from Austin Texas University, and 2201 citations to 114 research articles from the University of Florida.

A relationship might be established between the contribution of researchers who published the most research to universities based on the researcher-based table presented in Table 4. The Chinese University of Hong Kong, with which King-wa Fu is affiliated, published the most studies on social media and journalism and gained prominence on the topic, which can be interpreted as an inference that supported and confirmed this relationship. The second researcher with the highest number of studies on the research topic was Homero Gil de Zúñiga, affiliated with Pennsylvania State University, and the third researcher, Hsuan-Ting Chen, is affiliated with the Chinese University of Hong Kong. In fact, two of the top three researchers (i.e., King-wa Fu and Hsuan-Ting Chen) who published the most research on social media and journalism were members of the Chinese University of Hong Kong, contributing significantly to their university and making it the institution with the most publications on the research topic.

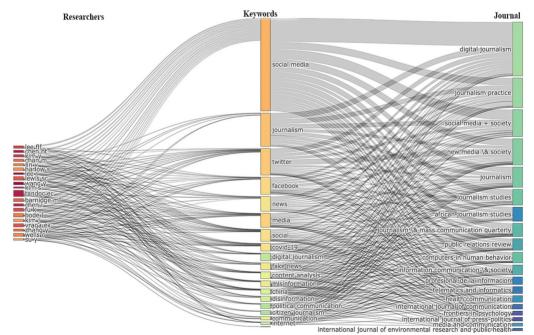
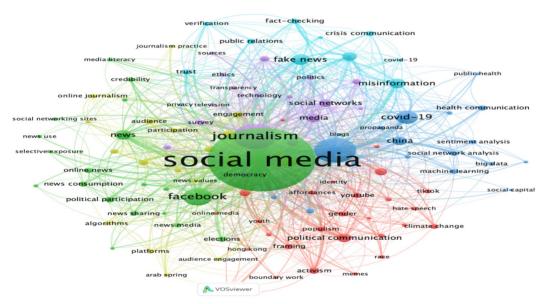


Figure 6



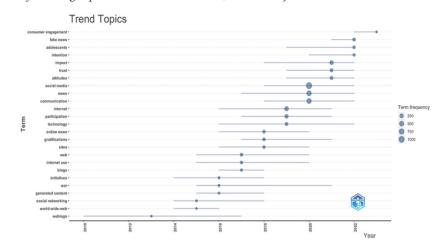
Figure 6 displays the three area graphs visualizing the 20 researchers with the most research articles, the 20 journals with the most publications, and the two most frequently repeated keywords. The graph is guiding in establishing relationships between the three areas (i.e., researchers, keywords, and journals). It thus gives an idea about the researchers who used the most frequently used keywords and the journals these keywords were associated. The graph indicates that the keywords "social media" and "journalism" had the most nodes between researchers and journals. The top three researchers who used the keyword social media the most were Jr. E.C Tandoc, F.L.F. Lee, and E. K. Vraga, and the journals including these keywords the most were *Digital Journalism, Journalism Practice*, and *Social Media + Society*. In addition, "journalism" was used as a keyword predominantly in *Digital Journalism and Journalism Practice*, and the researchers who used the keyword most were S. C. Lewis et al., and E. C. Tandoc.

Figure 7



Keywords and links used in Research on Social Media and Journalism

Figure 7 visualizes 284 keywords used at least 10 times out of 9485 keywords used in research on social media and journalism. Since "social media" and "journalism" were handled within research contexts, they had the highest number of links. It was determined that "social media" appeared in 1925 studies and "journalism" in 487 studies. These two topics had a total link strength of 4229 and 1442 as keywords. These words were followed respectively by "Twitter, Facebook, COVID-19, fake news, content analysis, misinformation, news, political communication, and media" and were found to have strong links.



Distribution of Trending Topics about Social Media and Journalism by Year

According to the findings presented in Figure 8, "social media" was the most common topic between 2016 and 2020, while "communication" and "news" were predominantly trending among the topics covered in these periods. From 2021 onward, "attitudes," "trust," "impact," "intention," "adolescents," "fake news," and "consumer engagement" were found to be prevalent topics. The circle sizes in Figure 9 also revealed that "social media" reached the highest number of uses (1076) in 2016 since it was also a relevant research topic.

Figure 9

Distribution of Authors' Keywords Related to Social Media and Journalism in 2007-2010 and 2010-2014 Periods

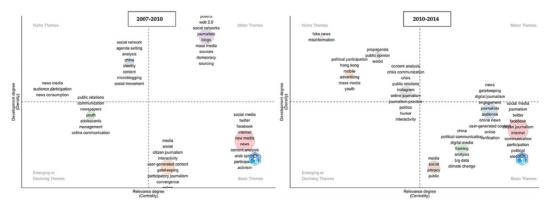
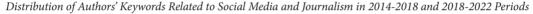


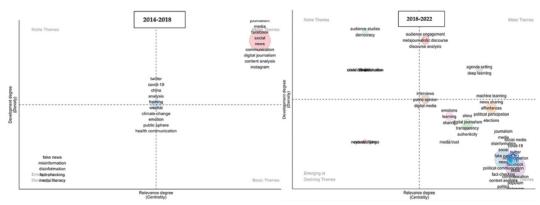
Figure 9-10 displays the dynamic examination of the thematic development of keywords used by authors in social media and journalism-related research between 2007 and 2022. Given the equal number of documents and time intervals, the research periods (2007-2022) were divided into four sub-periods: the first sub-period (2007-2010), the second sub-period (2010-2014), the third sub-period (2014-2018), and the fourth sub-period (2018-2022). As can be seen in the figure, the most emphasized

and elaborated themes were grouped by selecting the lowest frequency of five clusters and ten tags for each. The number of keywords was limited to 80 to avoid complexity in the figure and provide better readability. The words in clusters were keywords with the highest frequency. The size of the clusters was directly proportional to the number of keywords of each theme in each period and field.

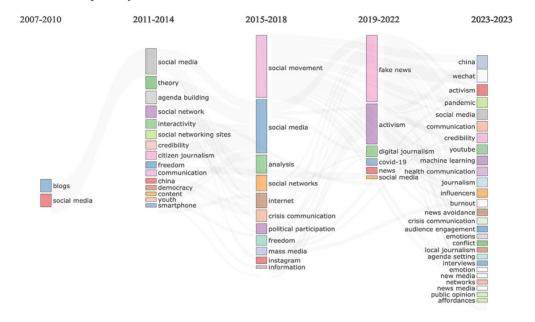
In Figure 9-10, each section was divided into four quadrants representing different types of themes. Two measures, including centrality and intensity, were used to explore the distinctive features of each theme cluster. Additionally, the upper right quadrant regarding themes consisted of distinctive motor themes with high density and centrality, and there was intensive work in this area. The upper left quadrant represents niche themes with highly developed interconnections, while the lower left quadrant refers to rising or falling ones. Concepts emerging in this area might be new out-of-field themes. The lower right quadrant creates fundamental and transformational themes. Themes in this field were frequently studied and had a strength of internal links (Cobo et al., 2011, pp. 150–151; Turner & Rojouan, 1991, p. 144; Cahlik, 2000, pp. 375–376; Jain et al., 2022, p. 331).

Figure 10





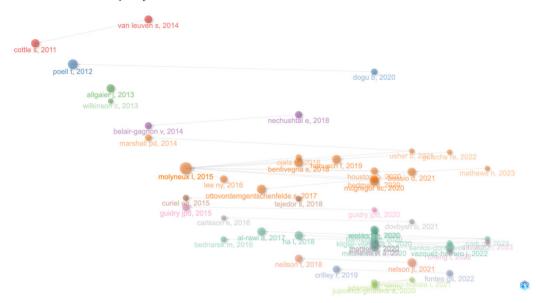
The first quadrant motor theme is positioned in the upper right corner, expressing high intensity and centrality. These themes are, therefore, significant when associated with social media and journalism and include those developed about the research topic. It was ascertained that these themes converged in one cluster between 2007 – 2010, none between 2010-2014, one between 2014-2018, and three between 2018-2022. While "journalism, politics, Web 2.0, social networks, journalists, blogs, mass media, sources, democracy, sourcing, television, ethics, guidelines, political blogs, public sphere, radio, self-regulation, theory" clustered as keywords in the motor theme between 2007-2010, "journalism, media, Facebook, social, news, communication, digital journalism, content analysis, Instagram" clustered between 2014-2018. Between 2018-2022, keywords such as "audience engagement, metajournalistic discourse, discourse analysis, agenda setting, deep learning" were identified in the motor theme, while "interviews, public opinion, digital media" were positioned in motor and basic themes. Therefore, concerning the research, the themes within the motor theme were central, well developed, and represented the focus of research on social media and journalism.

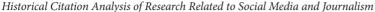


Thematic Development of Research on Social Media and Journalism

Figure 11 shows a five-period thematic evolution mapping made to support the thematic figure examined in the four periods in Figure 10 to holistically see how studies within the framework of the research topic have developed and changed over the years. A Sankey diagram was used to display inter-thematic interactions in the periods analyzed. In the Sankey diagram, each node represents the keywords with the highest frequency and a labeled set of themes associated with the corresponding sub-period. The size of the nodes is proportional to the number of keywords for the corresponding themes. The flow between nodes represents the evolutionary state of theme sets over time, with edge widths limited by the sum of two connected themes. A set of themes evolving over different sub-periods can be viewed as a thematic domain (Shi et al., 2020, p. 2168).

While the themes of studies on social media and journalism were centered around the keywords "blogs" and "social media" in the first period (2007-2010), there was a significant increase in the themes of the studies between 2011 – 2014. Emerging in the first period of research conducted on the topic, the "social media" theme was highly preferred in studies between 2011 and 2014, maintained its development in the following periods, and fed others. The theme "social media" fed such keywords as "Twitter, journalism, Facebook, media, social, news, content analysis, public relations, politics, Arab spring, journalists, digital media, framing, gatekeeping, sources, newspapers, online journalism, sourcing, audience, ethics, and verification." On the other hand, the theme "journalism" fed the keywords such as "digital journalism, Instagram, TikTok, engagement, trust, citizen journalism, user-generated content, public, influencers, platforms, audience engagement, YouTube, news values, youth, affordances, newspapers, crisis communication, transparency, authenticity, public relations, and new media" and flourished with them.





Using the functions of the R-based Bibliometrix, a historical representation of the citations used in social media and journalism research is presented in Figure 12. Figure 12 historically visualizes the citation node relationship between the top 52 most cited articles, and it bears significance for providing information about the historical literature development of social media and journalism research. Each node represents a study in the resulting figure, while inter-nodal lines refer to the citational relationship. A study's citation by others before or after it indicates a citation relationship with those studies. Within the framework of the research topic, the historical citation network consists of 12 clusters with 52 nodes. Examining the content of 52 studies in detail is crucial to understanding the development process of research related to social media and journalism. The first research to enter the historical citation network was Cottle's (2011) article titled "Reporting the Arab uprisings: Notes for research." Cottle's article was cited in a subsequent study co-authored by Van Leuven et al. (2014). Another related study in the historical process was by Poell and Borra (2012) titled "Twitter, YouTube, and Flickr as platforms of alternative journalism: The social media account of the 2010 Toronto G20 protests." The research by Poell and Borra was cited by Doğu (2020), who conducted a study by establishing a relationship with journalism through Twitter, one of the social media platforms. In addition, Molyneux's (2015) study on social media and journalism titled "What journalists retweet: Opinion, humor, and brand development on Twitter" made significant contributions to the literature on the topic and provided considerable resources to subsequent studies. Furthermore, Cottle's (2011) research was cited in 131 articles, with Guidry et al. (2015) in 130, Molyneux (2015) in 121, and Poell and Borra (2012) in 117. Recent studies by Mathews et al. (2023), Park and Kaye (2023), and Dawson et al. (2023) are noteworthy for providing resources for future research.

Discussion, Conclusion, and Recommendations

The study started with the question, "Is it possible to understand or interpret the evolution of social media and journalism fields through bibliometric analysis?" and employed a scientific mapping analysis to present specific conceptual structures and developments within the framework of research articles in the WOS database from 2007 to June 2023.

Results showed that the relationship between social media and journalism, starting with a research article published in 2007, grew considerably, with critical breaks after 2012 and 2019, and loads of studies were made on the subject afterwards. The dissemination of social media and journalism research by applying different methods and conducting relevant studies in various disciplines after 2012 is crucial for field-based development, widespread impact, and diversification of sources.

General statistics of social media and journalism research revealed that 1018 sources were used in 4687 studies between 2007 and 2013, with the annual growth rate of research at 45.93%. The international collaboration rate of 6898 scholars researching the subject was 24.43%. While it was concluded that the number of single-author articles was 974, the average citation rate per article was 15.57%.

Research on social media and journalism was conducted in 136 different fields of science as a common subject, with most studies conducted in the "communication" field. Communication was followed by business, information science, library science, political science, and sociology. An analysis of the research by year indicated that the first study was conducted in 2007, with an increasing distribution of research after 2012. While 2022 ranked first with the most studies on social media and journalism (n=744), 2021 ranked second with 741 studies. The studies conducted in the first period did not include a direct relationship between social media and journalism, although only specific relationships were mentioned in the literature. It was determined that social media – and journalism-related research started in 2009.

It was also found that King-wa Fu published the most studies (n=38), while Edson C. Tandoc Jr. received the most citations (n=2163) for his 23 articles on the topic. Additionally, it was determined that researchers were from 109 different countries, with the countries that published the most being the USA, China, Spain, and the United Kingdom, respectively. Researchers in the USA published a total of 2032 studies and received a total of 41673 citations until 2023. Data further revealed that 4687 articles on social media and journalism were published in 1018 different journals, with the most research published in the journal *Digital Journalism* and cited 6509 times.

Research articles about social media and journalism were published by researchers at 2130 different institutions. The university with the highest productivity on the subject was the Chinese University of Hong Kong, followed respectively by the University of Texas at Austin and the University of Florida. These universities received the following citations: 2680 in 114 articles, 5074 in 143, and 2201 in 114. Additionally, the Chinese University of Hong Kong, with which King-wa Fu is affiliated, published the most studies on social media and journalism and gained prominence on the topic, which can be interpreted as an inference that supported and confirmed this relationship.

The analysis of the most frequently used keywords in studies on social media and journalism, the researchers who used these keywords the most, and which journals they are associated with, showed that social media and journalism were the keywords with the highest number of links, as they were research topics. While "social media" was used as a keyword in 1925 research articles, "journalism" was used in 487. These keywords were followed respectively by others such as "Twitter, Facebook, Covid-19, fake news, content analysis, misinformation, news, political communication, media," with strong links between them. On the other hand, the top three researchers using the keyword "social media" the most were Jr. E.C Tandoc, F.L.F. Lee, and E. K. Vraga. They also used keywords, such as *Digital Journalism, Journalism Practice*, and *Social Media + Society*. The researchers who used the keyword "journalism" most were S. C. Lewis and Jr. E.C Tandoc, while *Digital Journalism* and *Journalism Practice* journals included the keyword the most. Identifying researchers with high impact and visibility in both fields provides a source for future researchers and field or subject-specific sustainability of the scientific tradition.

Despite the recent increase in bibliometric analysis research on specific topics related to national and international social media and journalism, general studies have not been conducted to reveal all the research specifically on these areas. This study is, therefore, expected to contribute to the fields of social media and journalism and the general framework of the relationship of different disciplines with these fields. Drawing a general framework for both fields and making certain inferences about the significant and insignificant areas and issues will thus guide future research. On the other hand, although this research has revealed the general trends of research related to social media and journalism, there are still various gaps in the literature that are open to development. First of all, the impact of social media environments on news from production to circulation needs to be addressed in detail. In addition, studies on the transformation of the concepts of ethics, accuracy, and credibility, which are important in the field of journalism, in social media environments are insufficient. A detailed study of the effects of artificial intelligence on journalism and social media practices, especially in terms of news production, distribution, and consumption, will provide significant benefits for both fields. Comparative research on the effects of social media environments on journalism in the context of different countries and cultures is limited. Finally, although social media environments have provided new revenue models for journalism (subscription, collaborations, donation-supported), these models are open to development within the framework of ethical issues and debates on their sustainability.

The study collected data from the WoS database and excluded others, constituting the study's main limitation. Additionally, using qualitative and quantitative research designs might offer different perspectives on how social media and journalism research have evolved since this study was only evaluated with bibliometric analysis.

Author Declaration

Peer Review Statement: This article has been evaluated through a double-blind peer review process. **Plagiarism Check:** The article was screened using both iThenticate and İntihal.Net software and found to be in compliance with the journal's plagiarism policy. Conflict of Interest: The authors declare that they have no conflict of interest.

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Ethics Committee Approval: This study does not require ethics committee approval.

Use of Artificial Intelligence Tools: No artificial intelligence tools were used in this study. All content reflects the original contribution of the authors.

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Data Availability Statement: No new data were generated or analyzed in this study. Data sharing does not apply to this study.

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