Visual Analysis on Social Media News Impact on College Students

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Abstract

The rapid growth and widespread adoption of social media platforms has changed the way individual's access and engage with news content. Research on social media news for college students can help understand the status of college students social media usage and news reading helps social media organization understand the needs of young users, and improve their news reading efficiency. This study employs CiteSpace software to perform a scientific assessment and visual examination of the pertinent literature concerning college students' research on social media news from 2000 to 2023. After screening the database for document types and topics, 209 relevant documents were obtained. The amount of literature on this topic has grown exponentially over time, indicating an increasing interest among scholars in this area. The results show USA produced the most literature, the University of Florida State is the most productive institution. Many authors in this field have published more than one article, and showed close contact and cooperation. Social media usage, impact and motivation are research hotspots in this field. Impact, online, mental health and behavior are the research frontiers at the current stage, and the future research trend will be more abundant, in-depth and detailed on these research hotspots.

Keywords

Social Media, News, College Students, Visual Analysis, CiteSpace

INTRODUCTION

In recent years, with the rapid development of network technology and media equipment, social media has become a media force that cannot be ignored (Couldry, 2012). Research on the relationship between online social media use and offline political action finds a stronger relationship between voting intentions and social media use than traditional (or offline) media use (Bélanger, 2019). Users use social media for different motives such as entertainment, social interaction, and information seeking, and different motives will affect users' satisfaction with social media and continued use intention (Hsu et al., 2015).

The convenience and accessibility offered by social media have led to its widespread adoption among college students. Sahharon et al. (2018) highlight the transformative impact of social media on traditional lifestyles, particularly its positive influence on the well-being of young individuals. These platforms allow college students to stay updated with news and current events in real time, enabling them to be well-informed about various subjects. The age group of 18-34 is the most engaged demographic in social networking (Newman et al., 2021) and this age group of college students relies heavily on social media platforms such as Facebook, Twitter, Instagram, and YouTube to access news content.

Smartphones are becoming increasingly popular in the daily lives of college students, and different mobile applications have multiple impacts on students. Mobile learning and news applications have a positive and direct impact on academic performance. However, applications such as mobile games, music, and entertainment have more negative impacts on students (Lin, 2021). Nowadays, social media is rich in functions and can meet users' needs for mobile learning, news acquisition, and game entertainment. Therefore, it is extremely valuable to focus on detailed research in social media news, whether it is related behavior or impact.

Acknowledging the potential risks associated with relying solely on social media for news consumption is crucial. Misinformation and fake news are prevalent on these platforms, and college students must be vigilant in discerning accurate information. According to Vosoughi et al. (2018), false information spreads significantly faster and wider on social media than accurate information, making it necessary for students to evaluate news sources and verify information critically. To address this challenge, some college students actively engage in fact-checking practices and participate in discussions on social media platforms. They share reliable news articles, question the validity of information, and seek clarification from trustworthy sources. Educational institutions also promote media literacy among college students by organizing workshops and courses that teach critical evaluation skills (Groshek & Al-Rawi, 2013).

The extensive research on social media has garnered significant attention and interest from scholars worldwide. Researchers from both domestic and international academic communities have conducted numerous studies on various aspects of social media, highlighting the significance of social media as a research subject and its impact on society. The breadth and depth of research on social media demonstrate the multidisciplinary nature of this field, with contributions from disciplines such as communication, psychology, sociology, and information science (Avison & Elliot, 2006). This comprehensive body of research highlights the growing recognition and interest in understanding the various facets of social media and its impact on individuals and society.

CiteSpace is a software for bibliometric analysis. Through the map information generated by this software, scholars can effectively discern the present state of scientific advancement, identify research focal points, pinpoint research frontiers in the respective academic domains, and predict research development trends (Chen, 2006). Based on an authoritative literature database, this research comprehensively and systematically uncovers the current research, areas of heightened interest, and emerging trends in social media news from multiple perspectives, such as countries, institutions, authors, and keywords. By analyzing and synthesizing data from these different angles, this study contributes a modest effort to the advancement of the field. The ultimate goal is to provide a theoretical reference to assist future scholars in their research endeavors and serve as a valuable resource for their studies and inspirations.

DATA ACQUISITION

Data collection was conducted using the Web of Science Core Collection (WOSCC) as the primary source database. The retrieval duration was unrestricted, with the precise search date set to August 1, 2023. In order to accurately obtain the relevant research data, a search strategy was carried out in terms of literature type, citation topic, and language. Table 1 shows that after inputting 'social media', 'news', and 'college students' for topic search (TS), 3755 documents were screened out for the first time. After the literature type was set to article and review, 2752 documents were obtained. Screening for citation topics that are suitable for this field, such as communication, pedagogy, and social psychology, 249 documents were found. Finally, the language was set to English, resulting in 209 documents.

Table 1 Search strategies and results

Set	Result	Search Query
#1	3755	TS= 'social media' AND 'news' AND 'college students'
#2	2752	Literature type
#3	249	Citation topics
#4	209	English language

RESEARCH METHODS

Citespace 6.2.R3 is a software that can visualize the knowledge development process and theoretical research structure and present the development process, research hotspots, and evolution trends of the research field. In this paper, through the knowledge map generated by the software, data processing, and visual analysis are carried out on the research results to realize the scientific analysis and evaluation of the research hotspots and development trends in this field.

STATISTICAL ANALYSIS
Annual Publication Amount Analysis

Fig. 1 Literature account during 2000-2023

As depicted in Figure 1, there is an increasing trend in the body of literature on this field over time. In 2000, the first article in this field was published by a researcher. During 2001-2006, no relevant research was published, which was a 'blank period'. Then, during the period from 2007 to 2011, the yearly average publication rate stood at a modest three publications, exhibiting minimal annual fluctuations, characterizing it as an 'initial development period'. In contrast, from 2012 to 2021, there was a noticeable upward trend in the number of publications, with an annual average surpassing 16 publications, marking a distinct phase of growth, and reaching a phased 'peak' in 2018. In the past two years, research in social media-related fields has become more abundant and scattered, and research related to news has slightly decreased in terms of data, but overall it is still in a period of growth. Given that the search date is in July 2023, it's essential to note that statistical data for the year 2023 remains incomplete. However, according to the annual literature trend and the fitting curve formula, the number of publication in 2023 is predicted to increase.

National Distribution Analysis

Fig. 2 The National Cooperation Network Map

Table 2 National publication amount ranking (Top Ten)

Ranking	Country	Frequency	Centrality
1	USA	91	0.39
2	Peoples R China	16	0.06
3	England	15	0.15
4	Spain	15	0.06
5	Australia	7	0.03
6	Canada	6	0
7	South Korea	6	0
8	Netherlands	6	0
9	Taiwan	5	0
10	South Africa	5	0

The country distribution of literature can be obtained from the country cooperation map generated by CiteSpace software (Figure 2), N=57, E=70, representing 57 nodes and 70 connections generated. Table 2 lists the ranking of the top 10 countries by research contribution. Connecting lines in the figure imply that countries have formed a close cooperative relationship. Among them, the USA produced the most literature (91 articles), accounting for about 43.54% of the total literature; China (16 articles), accounting for about 7.65%, ranking second; England (15 articles) and Spain (15 articles), accounting for about 7.17%, both ranking third, Australia (7), Canada (6), South Korea (6), Netherlands (6), Taiwan (5) and South Africa (5). The countries with the highest center are the USA (0.39), followed by England (0.15), China (0.06), and Spain (0.06), indicating that the research results of these countries are more important and have greater international influence in this field.

 Institutional Distribution Analysis
Using CiteSpace, an institutional cooperation network with 256 nodes and 219 connections was generated (Figure 3). The nodes in the figure correspond to different institutions, and the larger the node, the more articles the corresponding institution has published. Table 3 lists the information on the top nine institutions in terms of publication volume. The University of Florida State ranks first, with 12 articles, accounting for 5.74%. The University of Texas published the second most articles, with 6 articles, accounting for 2.87%. Third is the University of Texas Austin, with 4 articles, accounting for 1.91%. Research related to social media news is an important topic of common concern to many international institutions.
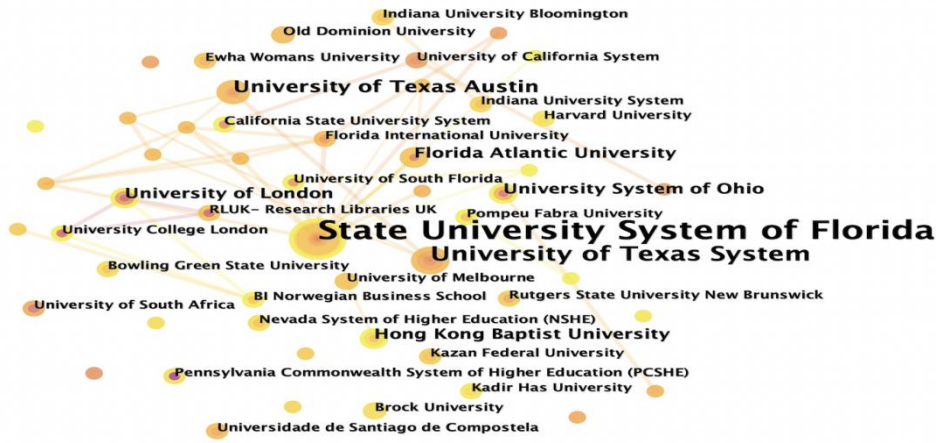
Fig. 3 Institutional Cooperation Network Map

Table 3 Institutional publication amount ranking (Top nine)

Ranking	Institution	Frequency
1	University of Florida State	12
2	University of Texas	6
3	University of Texas Austin	4
4	University of Ohio	3
5	University of Florida Atlantic	3
6	University of London	3
7	University of Hong Kong Baptist	3
8	University of Harvard	2
9	University of Melbourne	2

In Figure 3, there are 219 cooperation lines of various research institutions, and the connections indicate cooperative relationships between different institutions. The figure shows that many publishing institutions have formed a relatively close cooperative relationship in research fields related to news in social media with college students as the research objects. At the same time, this also means that institutions engaged in related research are gradually forming an academic platform with certain geographical advantages and close cooperation, which will help form an academic community in social media news.

Author Analysis

The author-cooperative network, shown in Figure 4, was generated with 318 nodes and 364 connections using CiteSpace. In the map, every node represents an individual author, with the node size directly proportional to the number of articles written by that individual. The connections between nodes signify collaborative relationships among these authors.
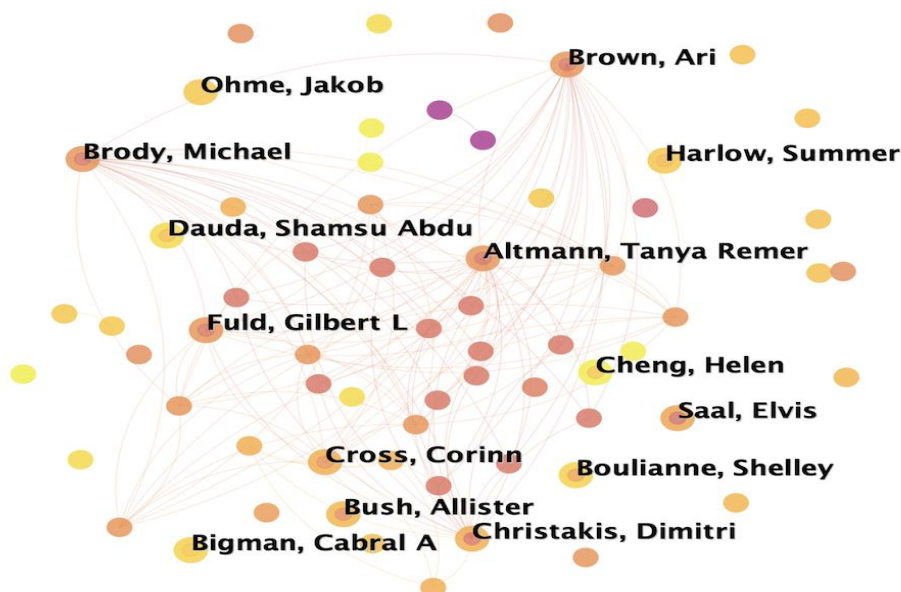

Fig. 4 Author Cooperative Network Map

Table 4 Author publication ranking (Top 14)

Ranking	Author	Frequency	Year
1	Cheng, Helen	2	2019
2	Saal, Elvis	2	2008
3	Brody, Michael	2	2009
4	Dauda, Shamsu Abdu	2	2018
5	Brown, Ari	2	2009
6	Ohme, Jakob	2	2019
7	Altmann, Tanya Remer	2	2009
8	Christakis, Dimitri	2	2009
9	Harlow, Summer	2	2017
10	Bigman, Cabral A	2	2019
11	Bush, Allister	2	2012
12	Fuld, Gilbert L	2	2009
13	Cross, Corinn	2	2013
14	Boulianne, Shelley	2	2015

Table 4 lists the top 14 authors in terms of publication volume. The large diameter of their nodes means that they have published more articles and contributed more to the research in the field of social media news. Their research results have important reference value and have certain authority and discourse power in academic research. Coincidentally, these 14 authors all published 2 articles in this field, including Saal, Elvis who published article in this field for the first time in 2008, and Cheng, Helen, etc. whose first publications for this field in 2019. Connections representing collaborative relationships between authors indicate that the field attracted many authors for collaborative research; the more connections between scholar nodes, the stronger the density of academic exchanges and cooperation. Figure 4 shows the diversity of connections between scholars. However, the overall centrality is not great, which is also an important objective for scholars to refine and deepen research in this field.

RESEARCH HOTSPOTS AND EVOLUTION TRENDS
Keywords Analysis
Hotspots in research are typically identified by analyzing keywords. Figure 5 shows a keyword co-occurrence map generated by CiteSpace. This map displays 184 nodes connected by 302 lines, with a network density of 0.0179. The nodes in the figure represent keywords, their size and color intensity reflect how frequently they occur and how likely they are to be research hotspots. The connections between nodes indicate co-occurrence relationships.

Fig. 5 Keyword Co-occurrence Map

Table 5 High frequency and high centrality keywords information

Ranking	Frequency	Keyword	Centrality	Ranking	Centrality	Keyword	Frequency
1	59	social media	0.16	1	0.36	College students	33
2	33	College students	0.36	2	0.26	adolescents	16
3	22	news	0.11	3	0.26	behavior	11
4	19	communication	0.12	4	0.23	internet	11
5	16	adolescents	0.26	5	0.18	gratifications	5
6	14	online	0.13	6	0.18	adoption	1
7	11	behavior	0.26	7	0.16	social media	59
8	11	internet	0.23	8	0.16	addiction	8
9	10	information	0.09	9	0.16	media	7
10	9	impact	0.07	10	0.15	identity	2

In Table 5, according to the frequency ranking, it can be seen that the keyword with the highest frequency is 'social media' (59 times), the second is 'college students' (33 times), followed by 'news', 'communication', 'adolescents', 'online', 'behavior', 'internet', 'information', and 'impact'. From the ranking according to the centrality, it can be seen that the core keywords are 'college students' (0.36), 'adolescents' (0.26), and 'behavior' (0.26). Figure 5 shows that many keywords with a high frequency of occurrtee also have high centrality rankings; 'social media', 'college students', and 'behavior', indicating that these are research hotspots in this field.

Research Front Analysis

Based on the knowledge clustering analysis function of Citespace 6.2.R3 and combined with Log-likelihood rate (LLR), keywords are classified and summarized. Cluster groups with clear boundaries and high internal consistency are then gradually generated to display the frontier achievements in social media news research comprehensively.

The results of cluster analysis of keywords in the field of social media news by Citespace software (Figure 6) show (Modularity) Q = 0.7941, exceeding 0.3, indicating that the network structure of this research field is reasonable; Mean Silhouette = 0.9352, indicating that The clustering results are reasonable and effective, the keyword subgroup clustering is better, and the internal consistency of each node within the clustering is high. After classifying and summarizing keywords, 11 keyword subgroups with clear boundaries and high internal consistency are generated, including #0 social networking sites, #1 facebook, #2 behavior, #3 problematic internet use, #4 digitalization, #5 social media, #6 civility, #7 social recommendation system, #8 victim derogation, #9 alcohol and #13 web 2.0.
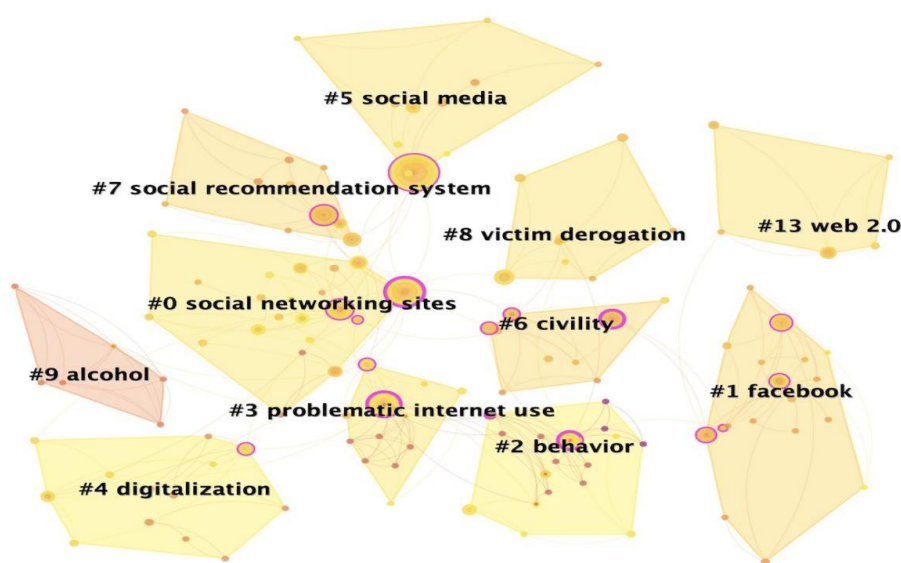

Fig. 6 Keywords Clustering Network Map

Table 6 Cluster Information

Cluster	Size	Silhouettte	Top-Term (LLR)
#0	21	0.941	social networking sites (snss) (3.45, 0.1); videos (3.45, 0.1); sociocybernetics (3.45, 0.1); teenagers (3.45, 0.1); pregnancy (3.45, 0.1)
#1	20	0.897	facebook (6.66, 0.01); twitter (5, 0.05); uses and gratifications (5, 0.05); smartphone (4.27, 0.05); social media threats (4.27, 0.05)
#2	18	0.937	behavior (11.42, 0.001); video games (11.42, 0.001); english (5.67, 0.05); gaming literacy (5.67, 0.05); resiliency (5.67, 0.05)
#3	13	0.966	problematic internet use (9.03, 0.005); social media (8.44, 0.005); emotional abuse (4.5, 0.05); outpatient (4.5, 0.05); music (4.5, 0.05)
#4	13	0.899	digitalization (6.26, 0.05); early childhood education (6.26, 0.05); reading habit (6.26, 0.05); resilience (6.26, 0.05); interaction design (6.26, 0.05)
#5	11	1	social media (6.67, 0.01); protests (6.3, 0.05); blm (6.3, 0.05); race (5.44, 0.05); social movements (3.66, 0.1)
#6	10	0.917	civility (4.95, 0.05); styles (4.95, 0.05); diffusion of innovations theory (4.95, 0.05); e-democracy (4.95, 0.05); turkey youth (4.95, 0.05)
#7	10	0.903	social recommendation system (4.8, 0.05); human-computer interaction (4.8, 0.05); online forum (4.8, 0.05); deliberation (4.8, 0.05); website design (4.8, 0.05)
#8	8	0.955	victim derogation (5.4, 0.05); modern racism (5.4, 0.05); counter-stereotypes (5.4, 0.05); aging stereotypes (5.4, 0.05); victim blaming (5.4, 0.05)
#9	6	0.974	alcohol (8.56, 0.005); irt (8.56, 0.005); beck depression inventory (8.56, 0.005); parameters (8.56, 0.005); longitudinal data (8.56, 0.005)
#13	5	0.95	web 2.0 (7.6, 0.01); meta commentary (7.6, 0.01); framing (7.6, 0.01); crossing (7.6, 0.01); citizen sociolinguistics (7.6, 0.01)

Note: 'Silhouette' is a way to evaluate the quality of clustering

'LLR' is the abbreviation of Log Likelihood Ratio

Table 6 statistics the specific information for each keyword cluster. According to the research hotspot analysis and cluster analysis results, the social media news research field from 2000 to 2023 is mainly divided into social media use, impact, and motivation.

Research on social media use has focused on different social media development contexts, functional uses, and technology uses. Among the digital media, social media is the most important for receiving information (Kozman & Melki, 2018).Social media enables more young people to interact with political information and share and express their views. Facebook is the main portal for young people to obtain political news and information (Mohamad et al., 2018). In digital media like social media, personalized algorithms are widely used, which can help users filter and prioritize news (Powers, 2017).

Research on the impact of social media deals with both positive and negative influences. Social networking sites (SNS) and mobile phones are becoming more and more important in the lives of teenagers. Social media use not only enhances adolescents' close connections with friends, but also jointly promotes adolescent civic engagement (Xie, 2014). Those who leave Facebook for a week consume less news and are less likely to identify politically inclined news reports , with clear impacts on users' daily lives (Mosquera et al., 2020). The rise of social media has fueled both optimism about potential social benefits and concerns about harms such as addiction, depression, and political polarization Worry (Allcott et al., 2020).

In terms of needs and motivations, different motivations, such as entertainment, social networking, information seeking, and self-presentation, will affect users' satisfaction and continued use intention of social media (Hsu et al.,2015). The role of social media in personal and civic life is becoming more prominent, and college students are increasingly using social media spaces for all their information and communication needs (Mihailidis, 2014). Social media's credibility always affects users' motivation to use them. However, the satisfaction users get through social media is strong enough that users are willing to trade credibility for need satisfaction (Johnson& Kaye, 2015).

Trend Analysis

Keyword bursts refer to using the explosiveness of keywords to study the development direction and changing trend of a certain field. Figure 7 is a network map of citation burst keywords in this research field generated based on the burst detection function in CiteSpace. In the configuration of the detection model set the minimum duration to 2 years, γ to 0.6, $f(x)=\alpha*e-\alpha x(\alpha 1/\alpha 0=2.0, \alpha i/\alpha i-1=2.0)$. 'Begin' and 'End' in the figure represent the start and end time of the mutation respectively, and the red part represents the period of the mutation.
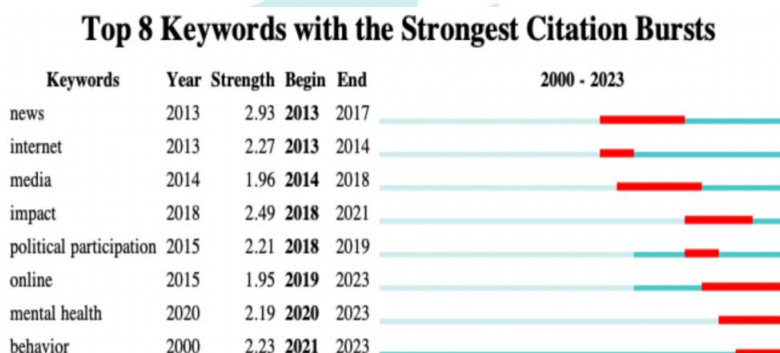
Top 8 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	2000 - 2023
news	2013	2.93	2013	2017	
internet	2013	2.27	2013	2014	
media	2014	1.96	2014	2018	
impact	2018	2.49	2018	2021	
political participation	2015	2.21	2018	2019	
online	2015	1.95	2019	2023	
mental health	2020	2.19	2020	2023	
behavior	2000	2.23	2021	2023	

Fig. 7 Top 8 Keywords with the strongest citation bursts

As can be seen in Figure 7, in the social media news research related to college students from 2000 to 2013, the burst time of 'news' and 'internet' was the earliest (2013). In particular, 'news' had the longest mutation period, from 2013 to 2017, and at the same time the burst strength of 'news' was the highest, at 2.93. Social media permeates many aspects of our lives, including people's access to news information, and those who leave Facebook for a week reduce their news consumption (Mosquera et al., 2020). In a political system where the state controls traditional mass media, social networking sites and social media are important places for ordinary citizens to contact, obtain, and exchange news and information (Bekmagambetov et al., 2018). Thus, 'news' became the hottest research topic in this field at the beginning of the 21st century.

In the next few years, 'media', 'impact', and 'political participation' became burst words in turn. Especially 'impact' had a relatively high burst strength of 2.49, indicating that this research topic has attracted much attention and achieved rich results during this period. Up to now, 'online', 'mental health', and 'behavior' is currently in the bursting period, meaning these topics are the focus of experts and scholars in this field.

Figure 7 shows that research on social media news related to college students is mainly divided into three stages. In the initial stage, from 2000 to 2012, research on 'behavior' began to appear in this field, focusing on the patterns and phenomena of young people's news reading behavior using social media. In the second stage, or the rapid development stage, from 2013 to 2017, 'news', 'internet', and 'media' are the topics experts and scholars in this field focused on. During the third stage, the stable development stage, between 2018 and 2023, 'impact', 'online', 'mental health', and 'behavior' were the research keywords. It is clear that research in the social media news field is getting more frequent and detailed.

CONCLUSION

Since the 21st century, research in the field of social media has developed rapidly. This paper uses Web of Science as the data collection platform. Web of Science is an important global academic information database. It uses Citespace 6.2.R3 software to process data and visually analyze research results (2000-2023). The analysis content involves countries, institutions, authors, and keywords. It comprehensively sorted and deeply excavated relevant literature and revealed the research status, hot spots, and trends in this field.

Statistical Analysis of Research Status

There is a clear and remarkable upward trend in the volume of international publications within the field of social media research. This trend has been characterized by exponential growth, particularly over the past decade, with an annual average publication rate of nearly 20 papers. This substantial increase signifies a growing interest and recognition of the importance of social media in academic discourse.

From the analysis of countries, it is evident that the United States leads the pack in terms of producing literature in this field, accounting for approximately 43.54% of the total publications. Countries such as China, England, and Spain have also made significant contributions with a relatively high output of publications. This international collaboration among countries indicates a strong commitment to sharing knowledge and resources in the pursuit of advancing research in the social media domain. The centrality ranking further underscores the influence of certain countries in the field. The United States, England, China, and Spain emerged as the nations with the most substantial international impact in social media research. This influence is a testament to the strength of their scientific communities and research institutions, which not only garner more attention and citations but also exert a considerable impact on the development and progression of the field.

Among the publishing institutions, the University of Florida State is the most productive institution, followed by the University of Texas and the University of Texas Austin. This points to a relatively close cooperative relationship among these institutions, fostering a culture of knowledge-sharing and collaboration.

Many authors in this field have published two articles, and the connections between authors are also diverse, indicating that the research on social media news has gradually changed from independent to collaborative research. However, it is important to note that the overall centrality of author collaboration in the field is not exceptionally high, indicating that there is room for further strengthening collaboration among researchers.

Research Hotspots and Frontier Trends

To gain insights into the research hotspots within the field of social media news, the researcher turned to keyword co-occurrence data. Scholars have primarily focused on keywords such as 'social media', 'college students', 'news', 'communication', 'adolescents', 'online', 'behavior', 'internet', 'information', and 'impact'. Among these, 'college students', 'adolescents', and 'behavior' have emerged as the most influential research keywords. Keyword clustering analysis led to the identification of 11 keyword subgroups, shedding light on the predominant research themes in the field.

Furthermore, keyword and cluster analysis results reveal that social media usage, impact, and motivation constitute the primary research content within this domain from 2000 to 2023. These topics are of paramount importance in understanding the complex interplay between social media and various aspects of society.

Keyword burst analysis provides additional insights, indicating that 'news' experienced the longest mutation period from 2013 to 2017, with its burst intensity peaking at 2.93. This highlights 'news' as the field's most prominent and popular research topic at the beginning of the 21st century. Subsequently, the field has transitioned into a period of stable development since 2018. In the coming years, 'influence', 'online', 'mental health', and 'behavior' are expected to continue as prominent research keywords. Researchers interested in these areas are encouraged to delve deeper into these evolving topics.

The analysis of research hotspots and trends serves as a valuable compass for researchers, guiding them towards choosing relevant research directions and staying abreast of the latest developments in the field. Moreover, this understanding of the research domain holds significance for science policymakers and decision-makers, as it informs resource allocation and strategic planning, thereby fostering scientific development and innovation in the ever-evolving landscape of social media research.

DISCUSSION

Assessing the current state of research in social media news concerning college students, it becomes evident that the volume of studies remains relatively limited. Nonetheless, a clear and consistent upward trajectory suggests the importance of drawing greater attention from researchers and academic journals. However, it is noteworthy that a unified, established, and authoritative theory elucidating the dynamic relationship and impact between social media and college students' news consumption needs to be improved. Therefore, a comprehensive theoretical framework should be constructed by amalgamating insights from social psychology, communication, education, and other related disciplines, harnessing the potential of interdisciplinary research.

Regarding research methodologies, the application of visual analysis through Citespace software offers a more lucid comprehension of the research landscape within this field. This approach also furnishes valuable reference points for

future studies. However, relatively few articles in this field still use this software for analysis. There should be some more scholars and authors joined in for more in-depth and detailed analysis and research.

Based on scientific evaluation of the field of social media news related to college students, combined with research hotspots in this field, the following suggestions are proposed:

Suggestions to address the issue of fake news on social media

Social media platforms can enhance media literacy education for users by providing guidelines and training on identifying fake news. Understanding the sources, backgrounds, and credibility of news reports can be easier for users with this information. Social media platforms can establish stricter mechanisms for verifying news sources, ensuring that only reputable news organizations and publishers can publish news on their platforms. Doing so will reduce the spread of fake news and increase users' trust in the credibility of news.

Suggestions to control the negative impact of social media on college students

Social media platforms can actively promote digital well-being by providing tools and resources to help users manage their online presence effectively. This can include features like setting time limits, promoting healthy social media habits, and encouraging breaks from excessive screen time. Social media platforms can promote positive interactions by encouraging users to share uplifting and inspiring content. Implementing measures to reduce cyber bullying, hate speech, and harmful content can create a healthier online environment for college students.

Suggestions to utilize intelligent recommendation systems to better meet readers' personalized needs

Social media platforms can introduce user feedback mechanisms where users can actively rate and provide feedback on the relevance of the recommended content. This feedback can be used to optimize the recommendation algorithms, better understand user preferences, and provide more tailored content. Apart from traditional news articles, social media platforms can offer diverse content formats, such as videos, audio, and images, to cater to different reading and entertainment preferences. Intelligent recommendation systems should consider users' preferences and usage patterns to deliver the most suitable content formats.

LIMITATIONS

This study employs CiteSpace software to perform a visual analysis of pertinent literature within the domain of college students' social media news research. While the data sourced from the Web of Science enjoys a high level of international credibility and literature quality, it may not ensure the complete coverage of all relevant literature. Consequently, the findings of this study may not fully represent the entire breadth of research conducted in this area. Some studies published in other databases may have been excluded, potentially leading to gaps in the analysis.

Another limitation of the study is the focus on English-language publications. While English is a dominant language in academic research, it may introduce bias in terms of the national cooperation network map and international collaboration analysis. Non-English publications could contain valuable insights and collaborations that are not reflected in the analysis. Although the search actually identified a small proportion of relevant literature in non-English languages in this study and had little impact on the national publication rankings, it did introduce bias when considering the national cooperation network map and has certain limitations. To address this limitation, future studies should consider using multiple databases and language sources to ensure comprehensive literature coverage.

Furthermore, owing to the presence of specific threshold configurations during the visualization process, the results presented by different settings are also different, so the results of the study have certain limitations. To mitigate this limitation, it is advisable to clearly document the threshold settings used and consider sensitivity analyses to assess the robustness of the findings.

In conclusion, while this longitudinal analysis provides valuable insights into the field of social media news research related to college students, it is essential to acknowledge and address its limitations. The limitations primarily pertain to the comprehensiveness of literature coverage, language bias, and the influence of threshold settings in visualization. Recognizing these limitations allows for a more nuanced interpretation of the results and encourages future research to overcome these challenges for a more comprehensive understanding of the field.

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