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CIVIC EDUCATION RESEARCH TRENDS IN THE CONTEXT OF SOCIAL MEDIA ECHO CHAMBERS: A BIBLIOMETRIC ANALYSIS

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ABSTRACT

The echo chamber phenomenon on social media poses a significant challenge to civic education by narrowing perspectives, reinforcing polarization, and weakening democratic dialogue. This study aims to map research trends on civic education within the context of social media echo chambers through a bibliometric analysis. Data were collected from the Scopus database using Boolean searches with the keywords "civic education," "echo chamber," and "social media," followed by several inclusion criteria. A total of 642 articles published between 2011 and 2025 were analyzed using *Biblioshiny*. The findings indicate that global academic interest in this topic has increased substantially, with an annual growth rate of 27.8%. However, the discourse remains dominated by themes related to political communication, participation, misinformation, disinformation, and social media, while civic education continues to occupy a relatively marginal position. The study also identifies a significant research gap, as only a limited number of studies explicitly connect civic education with the dynamics of echo chambers on social media platforms. In addition, emerging platforms such as TikTok demonstrate strong potential for future research due to their growing influence on civic awareness and digital public discourse among younger generations. This study highlights the importance of strengthening interdisciplinary approaches that integrate civic education, digital citizenship, media literacy, and curriculum development to address the challenges of polarization in the digital era. The findings also provide practical implications for educators and policymakers in Indonesia in developing more adaptive and critical digital citizenship education.

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INTRODUCTION

The digital era has brought about extraordinary changes, particularly in the development of information and communication technology. This progress goes hand in hand with transformations in the social, political, and educational spheres. These changes are largely driven by the significant role of social media, which functions not only as a communication tool but also as a platform for public discourse. It has the power to shape public opinion, influence the political behavior of

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society, and impact civic awareness (Castells, 2013) . In the context of civic education, social media presents an opportunity to foster citizens' political participation. However, it can also trigger the echo chamber phenomenon, which may narrow individual perspectives, reinforce polarization, and undermine the values of democratic deliberation (Cinelli et al., 2021).

In countries with high social media penetration such as Indonesia, algorithm-driven communication environments increasingly shape how citizens access political information and engage in public discourse. Recent studies indicate that personalized digital ecosystems tend to reinforce selective exposure, ideological segregation, and emotional polarization, particularly among younger generations who rely heavily on social media as their primary source of information (Boulianne & Theocharis, 2020). This condition creates significant challenges for civic education because democratic citizenship requires citizens who are capable of critical reflection, deliberative dialogue, and openness toward diverse perspectives. Consequently, strengthening digital civic literacy has become an increasingly urgent agenda within contemporary civic education frameworks.

Civic education is a subject defined as a learning process intended to produce citizens who are critical, participative, and fully aware of the importance of democracy (Kerr, 2003). Civic education is considered crucial in shaping students to embody smart and good citizenship within the life of the nation and society (Ahmad et al., 2023). Furthermore, civic education plays a role not only in imparting knowledge to the younger generation but also in cultivating the civic skills and attitudes necessary for active participation in the broader community. Civic education is essential for nurturing good citizens by adapting to the specific context and culture of each country (Gustaman et al., 2023). In this era of rapid digital advancement, civic education faces various challenges, such as the proliferation of the echo chamber phenomenon on social media. This leads to a digital society plagued by disinformation and a fragmented public sphere caused by social media algorithms (Pariser, 2011).

Research exploring civic education within the context of social media echo chambers remains remarkably scarce in academic literature. The phenomenon of echo chambers is predominantly examined in studies concerning political participation and communication (Kahne & Bowyer, 2018). Other literature also highlights that echo chamber research is largely confined to the realm of electoral politics—focusing on political polarization and the symmetric dissemination of information—without touching upon the broader scope of civic education (Cota et al., 2019). The formation of echo chambers on social media is not solely triggered by recommendation algorithms; it is also driven by psychological biases and the dynamics of socio-political polarization. A scientific survey regarding the echo chamber phenomenon asserts that mitigating these environments requires the integration of social computing, psychology, political science, and technological ethics (Alatawi et al., 2021) Consequently, the aforementioned studies demonstrate a clear gap, indicating the absence of a research trend focused on the study of civic education within the context of social media echo chambers.

Given the existing limitations in mapping the literature on civic education within social media echo chambers, this study adopts a bibliometric approach. This method was selected because it provides a robust framework for mapping research trajectories, identifying trends, analyzing collaborations among authors and institutions, and pinpointing existing research gaps (Donthu et al., 2021). This study exclusively utilized the Scopus database because it is widely recognized as one of the most comprehensive and reputable multidisciplinary indexing databases for academic publications. Scopus provides extensive international journal coverage, standardized bibliographic metadata, and a robust citation indexing system, making it particularly suitable for bibliometric analysis and scientific mapping studies. Compared to other databases, Scopus offers broader representation across the fields of education, communication, political science, and digital media studies, thereby enabling a more comprehensive and reliable analysis of research trends related to civic education and social media echo chambers (Mongeon & Paul-Hus, 2016). Therefore, bibliometric analysis based on Scopus data is employed in this study to address several critical questions: how publication trends have evolved within this specific intersection, which major themes frequently emerge, how collaboration patterns are structured, which journals and academic disciplines dominate the discourse, and ultimately, what current research gaps and future research directions exist.

The integration of civic education studies with the social media echo chamber phenomenon, coupled with the mapping of research trajectories via bibliometric analysis, constitutes the primary novelty of this study. While existing literature predominantly highlights the general political impacts of echo chambers, this scientific inquiry positions civic education as the central framework. It seeks to understand how citizens learn, interact, and build civic capacity within the

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digital sphere. Consequently, the findings of this research will contribute significantly to the advancement of academic literature, ultimately helping civic education evolve into a more adaptive pedagogical approach in facing the challenges of the future social media landscape.

METHOD

This study employs bibliometric analysis to map the trajectory of research on civic education within the context of social media echo chambers. This methodological approach was chosen for its efficacy in analyzing scholarly publication patterns, identifying research collaborations, and generating thematic maps of the study area (Donthu et al., 2021). The requisite data were gathered through a comprehensive literature search. Specifically, the dataset was acquired by conducting a targeted search within the Scopus database utilizing the following Boolean search "(TITLE-ABS-KEY("*civic education*" OR "citizenship education" OR "civic learning" OR "civic engagement" OR "democratic education")) AND (TITLE-ABS-KEY("*echo chamber**" OR "filter bubble*" OR "information bubble*")) AND (TITLE-ABS-KEY("social media" OR "digital platform*" OR "online media"))". The initial search on the Scopus database yielded a total of 1,371 articles. These data were subsequently refined based on several inclusion criteria: the publication period was restricted to the years 2011–2025; the subject area was limited to Social Sciences; the document type was narrowed down to "Article"; and the publication stage was set to "Final." Regarding keywords, all relevant terms were selected with the specific exclusion of "COVID-19" and "article." Furthermore, the source type was restricted to "Journal," and the language was limited to English. Following the application of these filters, the final dataset comprised 642 articles. These data were then downloaded in CSV format for further analysis.

The acquired dataset underwent a two-stage analytical process utilizing OpenRefine and Biblioshiny. Initially, the downloaded CSV data was processed using OpenRefine to detect and eliminate duplicates, as well as to harmonize any metadata inconsistencies. This rigorous data cleaning phase is paramount to ensuring unbiased bibliometric results by preventing errors stemming from misspelled author names, terminology variations, or duplicated publications. Following the data curation, the subsequent analysis was conducted using Biblioshiny. Biblioshiny is a web-based interface for the *bibliometrix* package within the R environment, allowing users to execute bibliometric analyses without the need for coding or writing programming scripts (Aria & Cuccurullo, 2017). Biblioshiny was selected as the primary tool because it provides more comprehensive bibliometric analyses, including thematic evolution, thematic mapping, conceptual structure analysis, and the integration of statistical analysis and visualization within a single platform. Unlike VOSviewer, which primarily focuses on network mapping and visualization, Biblioshiny enables broader and more interactive data exploration, allowing a deeper identification of research theme development (Aria & Cuccurullo, 2017; Mondal, 2026).

RESULT AND DISCUSSION

Result

Research on civic education trends in the context of echo chambers on social media represents a relatively emerging field that has experienced significant growth from 2011 to 2025. Data obtained from the Main Data indicate that a total of 642 documents have been published, with an annual growth rate of 27.8%. These findings suggest that this topic has increasingly attracted the attention of the academic community across various disciplines, including education, communication, politics, and media studies.

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Figure 1. Main Data
Source: Data analyzed using *Biblioshiny,* 2026

As illustrated in Figure 2, the *Annual Scientific Production* depicts the dynamic trajectory of publications from 2011 to 2025. During its initial phase, this research trend remained in an embryonic stage and had not yet garnered significant academic attention. However, the period between 2016 and 2018 witnessed a substantial surge in publication output. Subsequently, the timeframe from 2019 to 2022 exhibited a fluctuating pattern, characterized by intermittent increases and decreases in publication volume. Nevertheless, the period from 2023 to 2024 recorded remarkable growth in publications.

This escalation indicates that the field is increasingly gaining academic legitimacy and emerging as a strategic area of research. The increase in publications is likely associated with the rapid expansion of social media use, rising digital polarization, and the widespread dissemination of misinformation, all of which have intensified scholarly concern regarding the impact of digital spaces on democratic life (Cinelli et al., 2021). These developments suggest that the issue of echo chambers is no longer perceived merely as a communication phenomenon, but has evolved into a critical challenge for digital citizenship and democratic education. The apparent decline in publications observed in 2025 is attributed to the fact that the year is still ongoing, meaning that several recent articles have not yet been fully indexed in the database.

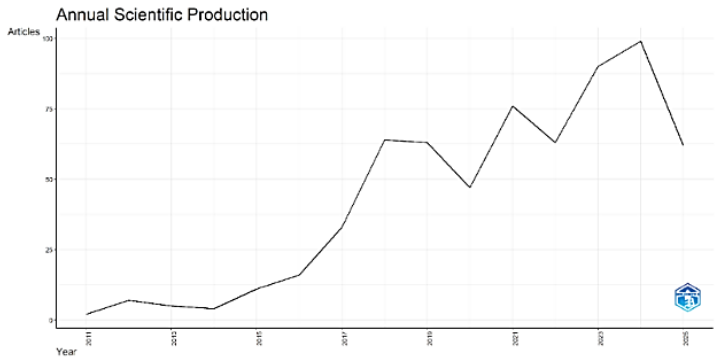


Figure 2. Annual Scientific Production
Source: Data analyzed using *Biblioshiny,* 2026

The visualization of the *co-occurrence network* in Figure 3, clearly illustrates that "social media" serves as the most central node, interconnecting with a multitude of other terms to form distinct thematic clusters. Within the blue cluster, "social media" exhibits strong linkages to concepts such as *political communication*, *Facebook*, *Twitter*, *echo chamber*, *polarization*, and *political discussion*. This specific network of connections highlights how social media platforms act as primary catalysts for polarization. This phenomenon is further substantiated by the emergence of the green cluster, which comprises nodes like *misinformation*, *disinformation*, *fake news*, and *media literacy*. The composition of this green cluster indicates that current research goes beyond merely identifying the root of the problem; it also actively addresses the ensuing consequences and societal impacts.

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Furthermore, the purple and gray clusters highlight dimensions such as civic engagement, citizenship, elections, and mobilization. These keywords signify a research trajectory that seeks to bridge social media dynamics with civic practices and electoral processes. In other words, beyond scrutinizing negative externalities like polarization, significant attention is also directed toward the potential of social media as a vehicle for strengthening democratic participation. Finally, the red cluster encompasses political discussion, political disagreement, and cross-cutting exposure.

The dominance of keywords such as political communication, polarization, misinformation, and disinformation indicates that studies on echo chambers continue to develop primarily from the perspectives of political communication and digital media behavior. This finding is consistent with previous studies suggesting that the phenomenon of echo chambers has been more frequently examined in the contexts of political polarization and digital information dissemination rather than from the perspective of civic education (Cinelli et al., 2021; Kahne & Bowyer, 2018). These conditions suggest that civic education still holds substantial potential in strengthening media literacy, critical thinking, and digital citizenship.



Figure 3. Co-occurrence Network
Source: Data analyzed using *Biblioshiny,* 2026

As depicted in Figure 4, the *Most Relevant Authors* chart highlights key scholars conducting research on civic education within the context of social media echo chambers. Homero Gil de Zúñiga emerges as the central figure in this domain, holding the highest output with a total of 16 publications. He is closely followed by other prominent authors, including Matthew Barnidge, Dhavan V. Shah, Saifuddin Ahmed, Leticia Bode, Shelley Boulianne, Francis Lap Fung Lee, Sangwon Lee, James H. Liu, and Yanqin Lu. These data indicate that while research on this topic remains somewhat concentrated among a specific group of scholars, there is a distinct potential for broader academic collaboration in the future.

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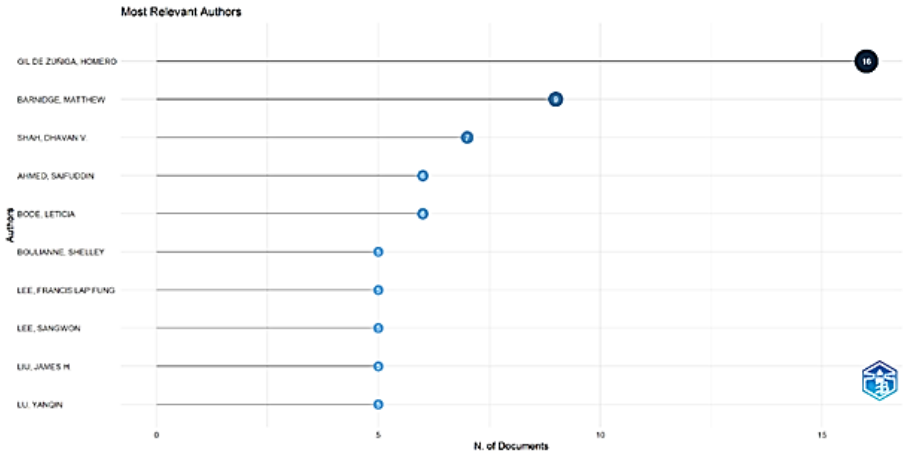


Figure 4. Most Relevant Authors
Source: Data analyzed using *Biblioshiny,* 2026

As depicted in Figure 5, the *Collaboration Network* illustrates the co-authorship patterns within the research domain focusing on civic education trends in the context of social media echo chambers. Homero Gil de Zúñiga emerges as the primary central node of this collaborative network, maintaining strong ties with scholars such as Matthew Barnidge, Sebastián Valenzuela, Michael A. Xenos, and Trevor H. Diehl. Furthermore, Gil de Zúñiga's network extends to interconnect with the second most prominent author in this field, Dhavan V. Shah. In turn, Shah plays a crucial role in forging collaborative clusters with Kjerstin Thorson, Lewis Friedland, and Hernando Rojas. The strategic positioning of these two leading scholars underscores their pivotal roles as bridges, facilitating collaborative efforts across diverse research themes and geographical regions.

Beyond the extensive collaborative networks anchored by these two prominent authors, several smaller, more localized clusters emerge. Partnerships such as those between Shelley Boulianne and Karolina Koc-Michalska, or Jae Kook Lee and Yanqin Lu, exemplify these highly focused, smaller-scale collaborations. The presence of these peripheral clusters underscores a diverse landscape of academic cooperation, even though they remain loosely connected—or entirely detached—from the central core of the network.

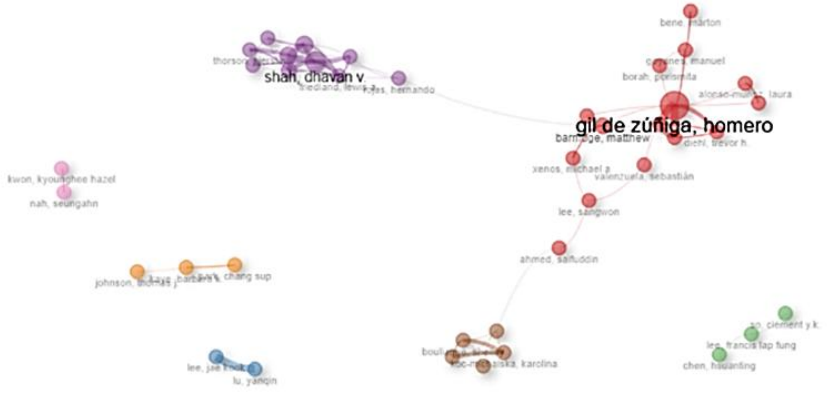


Figure 5. Collaboration Network
Source: Data analyzed using *Biblioshiny,* 2026

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As illustrated in Figure 6, the *Country Collaboration Map* delineates the global patterns of cross-national research collaboration. Western countries, particularly the United States and several European nations, occupy a dominant position within the global collaborative landscape. In contrast, collaborative participation from Southeast Asia, especially Indonesia, remains considerably limited. This finding is particularly noteworthy given that Indonesia is among the countries with the largest number of social media users worldwide, yet its engagement within global research networks remains relatively weak. Such conditions may be attributed to several structural barriers to the internationalization of education, including the absence of well-established international collaboration policies, limited incentives for globally oriented research, and insufficient systemic support for cross-border research networks (Brilyanti, 2025; Sutrisno, 2019). Consequently, perspectives on digital citizenship originating from developing countries tend to be underrepresented within global academic discourse. This condition carries important implications for the future development of civic education curricula, which should be reinforced through stronger international research collaboration to ensure that digital citizenship education is not solely framed through Western contexts, but also remains responsive to Indonesia's social and democratic dynamics.

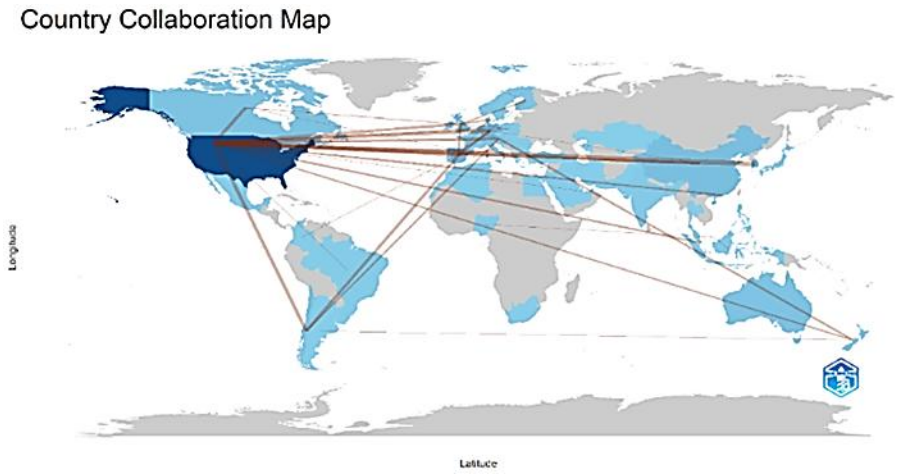


Figure 6. Country Collaboration Map
Source: Data analyzed using *Biblioshiny,* 2026

Based on the *Most Relevant Sources* analysis, research concerning civic education within the context of social media echo chambers is heavily dominated by journals in the fields of communication and media studies. *New Media & Society* emerges as the premier publication outlet, holding the top position with 37 published documents. As corroborated by Figure 7 (*Most Relevant Sources*), the scholarly discourse on this theme is predominantly concentrated within these specific disciplinary boundaries. Other highly productive journals in this cluster includes *social media and society*, *Journal of Information Technology & Politics*, and the *International Journal of Communication*, each featuring publication volumes ranging from 20 to 23 articles. Furthermore, journals such as *Digital Journalism* and *Media and Communication* exhibit substantial thematic relevance; these outlets frequently elucidate how digital platforms configure public opinion, drive political participation, and foster civic skills within the online sphere.

The dominance of journals in the fields of communication and media indicates that research on echo chambers continues to develop more strongly within the tradition of digital media studies rather than civic education. This finding is consistent with previous studies suggesting that echo chambers are closely associated with political polarization, information dissemination, and the dynamics of digital public spheres that influence the quality of democracy (Jiang et al., 2021). These conditions present significant opportunities for civic education to expand its scholarly focus toward media literacy and digital citizenship in order to become more responsive to the evolving communication landscape of younger generations.

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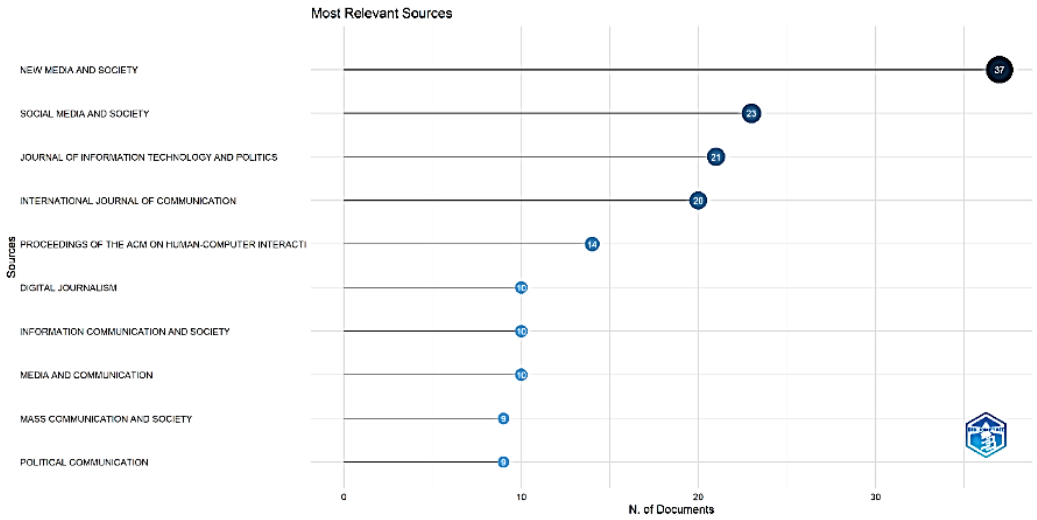


Figure 7. Most Relevant Source
Source: Data analyzed using *Biblioshiny,* 2026

As depicted in Figure 8, the *Thematic Map* is divided into four distinct quadrants: *basic themes*, *motor themes*, *niche themes*, and *emerging or declining themes*. Within the basic theme's quadrant, dominant topics emerge, such as *social media*, *Twitter*, *Facebook*, *democracy*, *media literacy*, *polarization*, *digital citizenship*, *civic engagement*, *misinformation*, and *echo chamber*. These concepts represent the most central foundational themes, having already been the subject of extensive scientific inquiry. Moving to the motor themes quadrant, several key topics arise, including *political participation*, *social networking (online)*, and *political interest*. These themes indicate that research is rapidly expanding in connecting the echo chamber phenomenon to the realm of political participation. However, their direct connection to civic education remains limited, as current studies are more frequently directed toward electoral political dynamics. This limitation presents a significant opportunity for future research to bridge the gap between civic education and digital politics.

The *niche themes* cluster encompasses several more specific themes, including citizenship education, curriculum, political attitudes, and legitimacy. These themes are highly relevant to the focus of the present study; however, they have not yet emerged as mainstream areas within the broader discourse. This condition reflects a noticeable research gap, indicating that civic education has not been fully integrated into discussions surrounding echo chambers and social media. Such circumstances may be influenced by the still-limited integration of students' digital experiences into formal civic education learning processes (Zhang et al., 2022). These findings highlight not only an existing research gap, but also opportunities for the development of more adaptive curricula through the integration of digital citizenship, media literacy, and digital civic experiences.

Finally, the emerging or declining themes quadrant features keywords such as *TikTok*, *digital journalism*, *computational social science*, and *censorship*. These terms denote currently underutilized concepts that hold substantial potential for advancing scientific inquiry, particularly if integrated with the overarching themes of civic education, echo chambers, and social media. In the context of this study, these emerging themes pave the way for novel exploratory research. Notably, *TikTok* as one of the fastest-growing social media platforms, is beginning to demonstrate its pivotal role in shaping civic awareness and facilitating public discussion spaces, even though empirical research on this specific phenomenon remains highly limited. TikTok has increasingly been recognized as a platform for shaping public opinion and encouraging digital participation among younger generations (Chalipah et al., 2026). This development suggests that the future direction of civic education curricula should become more adaptive through the integration of digital citizenship, media literacy, and digital civic experiences in addressing the challenges of polarization and echo chambers within social media environments.

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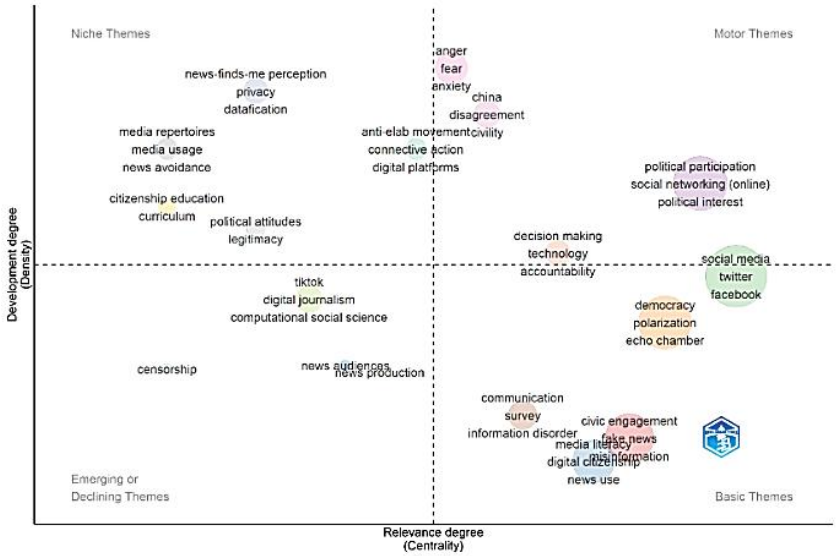


Figure 8. Thematic Map
Source: Data analyzed using *Biblioshiny,* 2026

Discussion

The bibliometric analysis of this study indicates that research trends concerning civic education within the context of social media echo chambers have experienced significant development between 2011 and 2025. However, keyword findings from the co-occurrence network reveal that research in this area remains dominated by themes such as social media, political polarization, misinformation, and political participation. Meanwhile, the dimension of civic education remains largely marginalized. Several factors contributing to this lack of integration in the digital space include the rapid expansion of digital environments on social media, inadequate teacher training, relatively rigid curriculum demands, and minimal government support (Agus et al., 2025). Nevertheless, concepts such as *political polarization*, *democracy*, *civic engagement*, *misinformation*, *media literacy*, *digital citizenship*, and *citizenship education* represent major focal points closely intertwined with the core objectives of civic education.

Furthermore, the specific keyword "echo chamber" has yet to receive substantial attention in scholarly literature. An echo chamber is a phenomenon where social media users on platforms like TikTok, Instagram, Twitter, and Facebook tend to seek out information that aligns with their pre-existing beliefs while actively avoiding contradictory perspectives (Donkers & Ziegler, 2021; Stegmann & Magin, 2021)The consequences of these echo chambers involve users isolating themselves from diverse viewpoints, ultimately leading to the manipulation of public perception and heightened political polarization (Rum et al., 2024). Concurrently, social media plays a crucial role as a pedagogical tool in developing digital citizenship, assisting students in finding, disseminating, and sharing information responsibly (Gleason & von Gillern, 2018). Naturally, the development of digital citizenship is inseparable from civic education; it equips learners with the critical, ethical, and responsible skills necessary to navigate digital spaces. In line with this, the cultivation of critical thinking and media literacy can effectively mitigate the adverse impacts of social media echo chambers (Madsen et al., 2018).

The collaborative patterns among authors, institutions, and countries remain heavily concentrated in Western nations, particularly the United States and within Europe. In contrast, Southeast Asia, notably Indonesia, remains relatively passive in international collaborative research efforts. Despite being categorized as a developing nation, Indonesia ranks among the countries with the largest social media user bases globally and consistently faces tangible challenges regarding digital polarization. Indonesia has experienced continuous growth in social media adoption, reaching 167 million users as of

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January 2023, the majority of whom are over 18 years old (Nugraha et al., 2024). These collaborative patterns highlight a significant research gap that is currently filled predominantly by the experiences of developed nations, thereby failing to accurately represent the true global dynamics at play. The limited contribution of developing countries may result in the underrepresentation of Global South perspectives on digital citizenship within global scholarly discourse. In contrast, the characteristics of social media use, political culture, and patterns of digital participation in Indonesia differ considerably from those observed in Western societies. This condition underscores the importance of strengthening international collaboration to ensure that the development of civic education is not merely shaped by the experiences of developed countries, but also remains responsive to the dynamics of local digital democracy.

An analysis of journals and publication sources indicates that this research theme is predominantly examined through the analytical lenses of communication, media, and political science. Journals that prominently publish on this topic include *New Media & Society* and *social media and Society*. Conversely, academic interest from an educational perspective, specifically civic education, remains notably sparse. This gap creates a substantial opportunity for civic education to foster interdisciplinary research, integrating information literacy, digital media studies, and democratic education curricula within the digital era.

This research gap is further evidenced by the thematic map, wherein "civic education" as a distinct keyword is notably absent. However, related concepts such as *citizenship education*, *curriculum*, *political attitudes*, *legitimacy*, *democracy*, *polarization*, and *digital citizenship* appear within the niche and basic themes quadrants. Additionally, the emerging or declining themes quadrant features terms like *TikTok*, *digital journalism*, *computational social science*, and *censorship*. This disparity, where the exact term "civic education" is missing but related concepts emerge and highlights the critical need to position civic education as a primary instrument for mitigation and intervention in building critical awareness in the digital age. One essential innovation to strengthen the role of civic education is the imperative integration of digital technology into the learning process (Harefa, 2025)

Moreover, analyzing these emerging or declining themes opens up novel exploratory avenues. New social media platforms, particularly TikTok, present a major opportunity for future research. While academic inquiry into this specific platform remains highly limited, it is beginning to demonstrate a significant role in shaping civic awareness within digital discussion spaces. Social media can serve as a "learning laboratory" for civic education, helping students navigate the increasingly complex challenges of misinformation and polarization. Although the evolution of social media presents numerous challenges, civic education consistently holds immense potential as an educational vehicle to cultivate critical and well-informed learners (Jannah et al., 2025)

Despite its theoretical and empirical contributions, this study possesses several limitations that warrant consideration. First, the data was sourced exclusively from the Scopus database covering the timeframe from 2011 to 2025; thus, it is possible that highly relevant literature from other databases was inadvertently omitted. Second, the reliance on specific keywords and search filters during the data retrieval process may have introduced data collection bias, potentially excluding some relevant articles. Given these limitations, it is essential to acknowledge that the findings of this study should be supplemented by more in-depth qualitative analyses and broader data explorations in the future to provide a more comprehensive and representative overview of the field.

CONCLUSION

This study has mapped the research trends of civic education within the context of social media echo chambers through a comprehensive bibliometric analysis. Utilizing data retrieved from the Scopus database for the 2011–2025 period, several key conclusions have been established. First, publications on this theme have experienced rapid growth since 2016, indicating that the echo chamber phenomenon is increasingly gaining prominence within global academic discourse. Second, the field remains dominated by issues such as political polarization, political participation, misinformation, and general social media studies, while the specific dimension of civic education continues to occupy a marginal position. Third, research collaboration networks are still heavily dominated by Western nations, with contributions from Southeast Asian countries, including Indonesia, remaining notably limited.

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These findings indicate the existence of a significant research gap, namely the limited number of studies that explicitly connect civic education with the dynamics of echo chambers on social media. Nevertheless, the emergence of new themes such as TikTok presents a promising avenue for future scholarly inquiry, particularly given its increasingly important role in shaping civic awareness within digital discussion spaces. Accordingly, this study underscores the need to strengthen interdisciplinary research that bridges civic education, digital citizenship, and curriculum development in addressing the challenges posed by echo chambers within social media environments. Future studies should be directed toward more applicative and empirical investigations, particularly through experimental research examining the effectiveness of digital citizenship-based civic education modules in reducing echo chamber tendencies on specific social media platforms such as TikTok, Instagram, and X. Such approaches are expected to contribute to the development of more contextual and relevant learning models capable of addressing the challenges of digital citizenship among younger generations.

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