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Review Article

Global Perspectives on ICT in Civic Education: A Systematic Review of Research from 2006 to 2024

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Abstract

The integration of Information and Communication Technology within civic education delivery represents an increasingly emergent research area. Due to the growing involvement of technology in educational aspects, understanding how it is utilized within civic engagement is crucial. This paper aimed to determine the year that experienced the highest publication of research related to ICT integration into civic education, the most common research contexts and designs adopted by such studies, and the most dominant themes within the realm. Data from Google Scholar and CORE databases, spanning the period 2006–2024, were obtained using predefined inclusion and exclusion criteria, yielding a total of 52 relevant studies. PRISMA was used for data extraction and analysis. The results indicated that 2024 had the highest number of publications, while Indonesia contributed 17 papers—the most publications from a single country. The most frequently used methodology was a descriptive research design, while the most dominant research focus involved theories and models of ICT integration. One of the major limitations identified in this work was the restriction to only two databases, thus not being adequately representative of worldwide perspectives. Therefore, results need to be interpreted cautiously due to issues of generalization. This also shows an increase in recent literature on civic education with respect to ICT integration and its growing research momentum. Future research should be directed toward wider global standpoints and consider the impact on civic engagement in view of ICTs.

Keywords: ICT integration, civic education, systematic literature review, educational technology, digital citizenship.

INTRODUCTION

Civic education involves making citizens aware of their rights and responsibilities within a given context (Damayanti & Khairunisa, 2024; Crittenden et al., 2007). A nation's identity is often expressed through its educational system, and civic education is one such medium (Afriadi & Fitri, 2025; Nuryadi & Widiatmaka, 2023). Civic education can be implemented at various levels of the educational system and even beyond the classroom environment. The evolution of technology has influenced multiple fields of study, including civic education. Information and Communication Technology (ICT) has been integrated into civic education globally, utilizing various aspects to enhance individuals' civic knowledge (Irianto, 2025).

Research publications exploring different segments of ICT and civic education on specific themes are increasingly gaining prominence (Schulz et al., 2025). Consequently, a systematic literature review is essential to identify trends and gain a better understanding of the field. Recognizing these trends can inform future research directions in ICT integration in civic education, particularly through empirical studies. Systematic literature reviews can consolidate several studies under a unified framework for synthesis. This method has been recognized in literature as an effective approach for harmonizing diverse publications on a specific subject (Fortier et al., 2017). According to Lame (2019), a systematic literature review synthesizes all relevant data on a given topic and evaluates the studies using rigorous, transparent, and replicable methods to address specific research questions.

Numerous studies worldwide have contributed empirical insights into the role of ICT in enhancing civic education. While systematic literature reviews may have been conducted over the years, a comprehensive review of publications on ICT integration in civic education from 2006 to 2024 is still lacking (Binti Mohd et al., 2024; Tello-Flores & López-Regalado, 2024; Sharma et al., 2022; Prasetiyo et al., 2021; Saldivar et al., 2019). This study analyzes key issues, the context, the number of publications per year, and research designs as part of the methodologies employed in the reviewed literature. Therefore, the primary objective of this systematic literature review is to highlight the prevailing trends related to ICT integration in civic education globally.

Research Questions

1. Which year had the highest number of publications on ICT integration in civic education?
2. In the context of ICT integration in civic education, which research design was most frequently used in the reviewed publications?
3. What is the dominant research direction in ICT integration in civic education?

A comprehensive and systematic approach to the literature review was necessary to answer these research questions. The Methodology section below outlines our structured process for identifying, appraising, and synthesizing relevant studies.

METHODOLOGY

A Systematic Literature Review (SLR) critically analyzes what published literature reveals about a particular subject—in this case, the integration of ICT in civic education (Linnenluecke et al., 2020). This study adopted the SALSA framework (Mengist et al., 2020), which stands for Search, Appraisal, Synthesis, and Analysis:

- Search: Defined search strings and database types.
- Appraisal: Applied predefined inclusion and exclusion criteria and assessed the quality of literature related to ICT integration in civic education.
- Synthesis: Extracted and categorized data from published articles and theses within the specified timeframe.
- Analysis: Interpreted and presented results in line with the study's research questions.

Adopting the SALSA framework allowed for a structured approach to literature analysis and facilitated drawing reliable conclusions. To minimize bias, the process outlined by Galvan and Galvan (2017) was used, involving systematic searching, scanning, and writing. The literature was sourced from Google Scholar and the CORE database.

Search Strategy for Articles and Theses

The literature search was conducted using Google Scholar and the CORE database, targeting publications from 2006 to 2024. Keywords included: 'ICT', 'integration', 'civic education', and '2006'. Boolean operators such as AND and OR were used—for example:

- "ICT integration" AND "civic education"
- "ICT education" OR "technology in civic education delivery"

The goal was to identify relevant literature on the topic. The search was performed sequentially in Google Scholar, followed by the CORE database, using the same keywords and Boolean operators. Searches were repeated until data saturation was achieved. The combined search yielded 52 papers for further analysis, as presented in the PRISMA flow chart (Figure 1).

Scanning of Articles and Theses

The retrieved literature was scanned to eliminate duplicates and irrelevant papers. This filtering ensured that only papers relevant to the study's focus were retained. The selected papers were critically analyzed to determine:

- The year with the most publications,
- The contextual and methodological characteristics,
- The dominant themes in ICT integration in civic education.

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow chart (Page et al., 2021; Moher et al., 2009) was used to present the scanning results. It is worth noting that PRISMA is not a methodology for conducting systematic reviews but a guide for planning and reporting the review process (Institute of Medicine, 2011; Cooper et al., 2019; Dekkers et al., 2019). The search yielded 320 papers from Google Scholar and 10 papers from the CORE database, as shown in Figure 1.

Inclusion and Exclusion Criteria

The inclusion criteria helped retain only relevant papers, while the exclusion criteria filtered out irrelevant ones. These predefined criteria were used to determine which studies to include in the systematic review. The detailed criteria are presented in Table 1.

Table 1: Inclusion criteria for selecting studies on ICT integration in civic education

Criterion	Inclusion factor
Period of the research paper	2006 to 2024
Language	English language
The focus of the paper	ICT/technology integration in civic education
Empirical paper	Articles or theses on ICT integration and civic education

52 articles and one thesis were found to be eligible for the systematic literature review as presented in the PRISMA flow chart in Figure 1.

Data Extraction and Analysis

Data extraction for further analysis was conducted using a bibliometric analysis table. This table was prepared based on the inclusion criteria outlined in Table 1. The table includes the following headings:

author(s), year of publication, article/thesis, context (study area), topic, contribution, research design, results/conclusion, and what the author(s) missed. Abstracts were read to determine if the studies met the inclusion criteria, relying not only on titles. Analyzing abstracts and reading full papers allowed categorization of each study according to the research questions guiding this systematic literature review.

Data visualization was used to analyze the number of publications on ICT integration in civic education from 2006 to 2024. Content analysis was employed to determine the geographical distribution of the publications and to identify commonly used research methods in civic education technology delivery. The final research question, concerning the dominant issues in ICT integration in civic education, was also addressed through content analysis.

By applying the SALSA framework and PRISMA guidelines, the analysis revealed significant patterns and trends in the literature. The findings are presented in the sections that follow, organized by the study's three primary research questions.

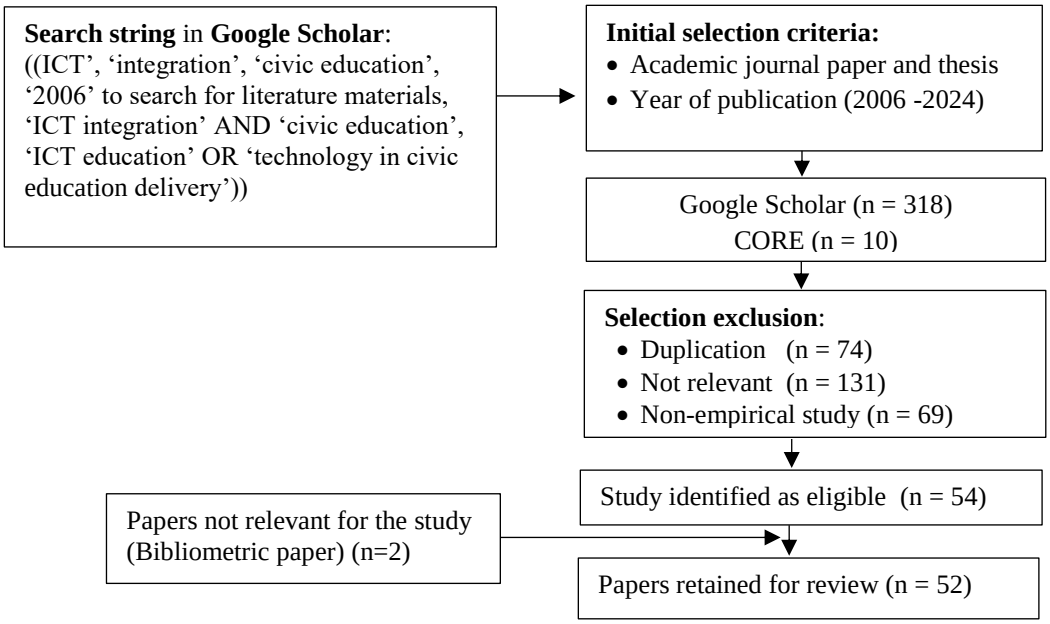

Figure 1: PRISMA flow diagram showing the selection process of studies

RESULTS AND DISCUSSION

Number of Publications on ICT Integration in Civic Education (2006–2024)

To answer research question one regarding trends in ICT integration in civic education, a scatter plot (Figure 2) was used to present the results. The data visualization in Figure 2 shows 43 publications on ICT integration in civic education. 2006 and 2019 had one publication each (McDevitt & Kiousis, 2006; Komalasari, 2019). From 2019 onward, the number of publications began to rise significantly, peaking between 2021 and 2024:

- 2021: 8 publications (Badrinathan, 2021; Dunaway et al., 2021; Hrytsenchuk et al., 2021; Japar et al., 2021; Saleh et al., 2021; Maesaroh & Masyitoh, 2021; Santoso 2021; Sebastián et al., 2021)

- 2022: 10 publications (Schulz et al., 2022; Saleh et al., 2022; Mulenga & Ng'andu, 2022; Wang et al., 2022; Zhang et al., 2022; Luo, 2022; Adjin-Tettey, 2022; Peart et al., 2022; Devi et al., 2022; Harris et al., 2022)
- 2023: 11 publications (Dahnial et al., 2023; Harmanto et al., 2023; Karuri-Sebina & Mutua, 2023; Luthfi et al, 2023; Mulyana, 2023; Nyathi, 2023; Pramono et al., 2023; Polizzi, 2023; Tagmat et al., 2023; Triyanto et al., 2023; Zhang, 2023).
- 2024: 12 publications (Badrinathan et al, 2024; Cheng et al., 2024; Donkoh et al, 2024; Japar et al., 2024; Jing, 2024; Kartini & Dewi, 2024; Lu, 2024; Misan-Ruppee et al., 2024; Prayogi et al., 2024; Romadhoni & Rejekiningsih, 2024; Thelma, 2024; Yuniarto et al., 2024)

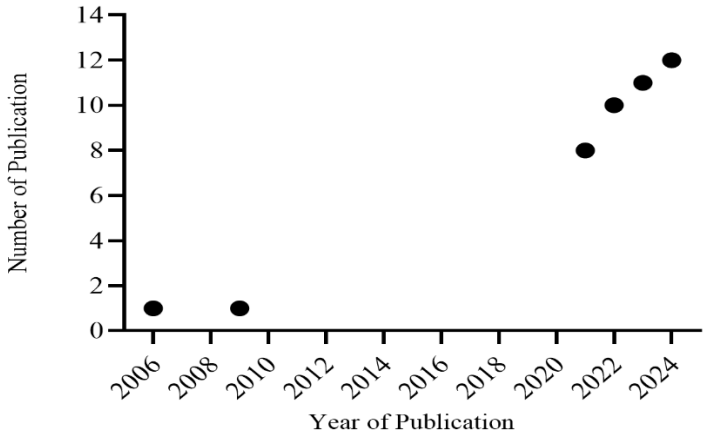

Figure 2: Scatter plot showing publication trends on ICT integration in civic education (2006–2024)

In 2024, 12 studies were published, making it the year with the highest number of publications. Figure 3 presents the global distribution of these studies. This trend suggests increasing interest in ICT integration in civic education. The rising number of publications indicates a growing recognition of the knowledge gap and the emerging role of technology in civic education delivery. This upward trend is expected to continue, helping to further close this gap and broaden the scope of civic engagement. This finding reveals important patterns in publications on ICT integration in civic education. The discussion explores this trend within the broader context of civic education delivery.

Publications on civic education that incorporate ICT or technology have shown a consistent increase from 2006 to 2024. This upward trend suggests an increasing recognition of a knowledge gap in the field, which is now being addressed through technological advancements. The integration of emerging technologies is being leveraged to enhance civic education outcomes. The growing emphasis on technology, along with other key findings in the literature, indicates the potential for improved delivery and outcomes in civic education. The spike in publications in 2024 suggests that this momentum will likely continue in subsequent years. As the number of publications grows, the perceived knowledge gap will narrow. The continued integration of technology into civic education is expected to broaden citizens' awareness and engagement.

The publications in 2024 tend to focus on issues more closely related to citizens' daily experiences, potentially deepening civic participation through the use of ICT. For example, Badrinathan et al. (2024) examined credible interventions that attract attention and incentivize engagement—interventions that may help reduce support for vigilantism. ICT can serve as a platform for civic dialogue, enabling citizens to contribute ideas and propose solutions to societal issues.

Context of Publications and Research Design

Table 2: Context and research designs used in studies on ICT integration in civic education

Context (Geographical area)	Frequency	Percentage
Asia, Europe, and America	1	1.92
China	5	9.62
Finland	1	1.92
France	1	1.92
Germany	1	1.92
Ghana	3	5.77
Ghana and Nigeria	1	1.92
India	1	1.92
India and Pakistan	1	1.92
Indonesia	17	32.69
Malaysia	2	3.85
Negeri Rawamerta	1	1.92
Nigeria	1	1.92
Portugal	1	1.92
Singapore	1	1.92
South Africa	1	1.92
Spain	1	1.92
Ukraine	1	1.92
USA	3	5.77
Zambia	2	3.85
Context not disclosed	6	11.54
Research Design Used		
Control group	1	1.92
Descriptive	11	21.15
Development	1	1.92
Experimental	2	3.85
Exploratory and descriptive	1	1.92
Quasi-Experimental	1	1.92
Research design not indicated	35	67.31

The results of the context and research designs used have been presented in Table 2. The 52 reviewed publications came from approximately 16 countries. However, six publications did not disclose their geographical context (Romadhoni & Rejekiningsih, 2024; Andriani, 2020; Polizzi, 2023; Yuniarto et al., 2024; Jing, 2024; Dahnial, 2023). Indonesia accounted for the most studies (17 publications), showing a strong research focus on civic education and ICT integration from 2006 to 2024 (Sutoyo, 2020; Prayogi et al., 2024; Santoso, 2021; Luthfi et al., 2023; Saleh, 2021; Pramono et al,, 2023; Saleh et al., 2022; Saleh et al., 2021; Maesaroh & Masyitoh, 2021; Harmanto et al., 2023; Triyanto et al., 2023; Saleh et al., 2021; Komalasari, 2019; Japar et al., 2021; Japar et al., 2024; Mulyana, 2023; Devi et al., 2022). African, Asian, and European countries were also represented, although most had only one to five publications each. In Africa, Ghana had three publications (Abudu et al., 2014; Adjin-Tettey, 2022; Donkoh et al., 2024).

The most common research design was descriptive, used in 11 publications (Sutoyo, 2020; Thelma, 2024; Saleh et al., 2021; Saleh et al., 2022; Komalasari et al., 2019; Donkoh et al., 2024; Japar et al., 2024; Mulyana, 2023; Devi et al., 2022; Harris et al., 2022; Odusanya & Oni, 2019). Two studies used experimental designs (Adjin-Tettey, 2022; Badrinathan, 2021), while 35 publications (67.31%) did not indicate the research design used (Kartini & Dewi, 2024; Prayogi et al., 2024; Santoso, 2021; Zhang,

2023; Lu, 2024; Chen & Zhou, 2023; Cheng et al., 2024; Luthfi, 2023; Schulz et al., 2022; Pramono et al., 2023; Romadhoni & Rejekiningsih , 2024; Maesaroh & Masyitoh , 2021; Harmanto et al., 2023; Triyanto et al., 2023; Mulenga & Ng'andu, 2022; Andriani, 2020; Wang et al., 2022; Zhang et al., 2022; Karuri-Sebina & Mutua, 2023; Tagmat et al., 2023; Nogueira et al., 2009; Luo, 2022; Sebastián et al., 2021; Saleh et al., 2021; Polizzi, 2023; Japar et al., 2021; Hrytsenchuk et al., 2021; Grön & Nelimarkka, 2020; Dunaway et al., 2021; Yuniarto et al., 2024; McDevit & Kiousis, 2006; Ghavifekr et al., 2014; Jing, 2024; Dahnial et al., 2023; Nyathi, 2023).

A notable observation is that six publications—representing 11.54% of the sample—did not indicate the geographical context of the research. This omission may not have been deliberate. It is possible that the authors were aware of the importance of including geographic information, but that journal editorial guidelines did not emphasize it. Some journals may not require the disclosure of research settings, especially if it affects the length or framing of the title. However, such information could easily be addressed in the methodology section, particularly under sampling or data collection.

Another possible explanation for the absence of geographical identifiers could be that the papers were systematic literature reviews (SLRs) or bibliometric analyses, which draw on global data and do not necessarily apply to a specific location. However, no such review-type studies were included in the sample for this systematic analysis. Thus, these potential justifications do not fully account for the lack of geographic detail in the six publications.

Indonesia produced the largest number of publications with geographic identifiers—17 out of 52 papers (32.69%). While this is the highest proportion by country, it is not overwhelmingly large given the global scope of civic education research. Nevertheless, the strong showing from Indonesia, a Southeast Asian country on the Australian continental plate, is significant. It suggests an active academic community in Indonesia, particularly concerning civic education and ICT integration.

China followed with five publications (9.62%). Given China's large population compared to Indonesia, the volume of Chinese publications is relatively modest. This suggests that publication trends may not be population-driven but rather influenced by civic priorities and governance dynamics. The difference in civic culture between China and Indonesia may be a contributing factor. This paper argues that varying forms of civic engagement and governance challenges in these countries are likely influencing the direction of research on ICT integration in civic education. In the case of the United States—a highly advanced country in terms of technological infrastructure—only three publications (5.77%) were identified during the review period. Despite its large population and technological development, this lower number suggests that civic engagement practices, rather than technological readiness, may be a stronger driver of academic inquiry into civic education.

Regarding research designs used in the publications, descriptive and experimental designs were the most common. The descriptive design was the most frequently employed, appearing in 11 publications (21.15%). These studies typically investigated existing conditions without manipulating variables. The researchers gathered data and reported on their findings, selecting methodologies appropriate to their study objectives. A surprising finding was that 34 papers did not specify the research design employed. The absence of clearly stated research designs is concerning, as research design serves as the blueprint for the methodology and provides transparency about the analytical approach. This lack of detail makes it difficult to assess the methodological rigor of the studies and limits the ability of future researchers to replicate or build upon their findings. It also hinders efforts to categorize the studies by research approach and undermines reproducibility, both within and outside the original research contexts.

Dominant Issues in ICT Integration in Civic Education

Table 3: Dominant issues in civic education and ICT integration

S/N	Author (s) /Year	Topic	Contribution
1	Abudu et al. (2014)	Civic Awareness and Engagement in Ghana: The Curricular Implications	Examine the curricular implications of civic awareness and engagement.
2	Adjin-Tettey (2022)	Combating fake news, disinformation, and misinformation: Experimental evidence for media literacy education	How media and information literacy help consumers identify fake news, disinformation, and misinformation, and how it influences their sharing intentions.
3	Andriani (2020)	Promoting civic education through integrated ICT-based media in early childhood education	How to promote civic education using ICT.
4	Badrinathan et al. (2024)	Misinformation and Support for Vigilantism: An Experiment in India and Pakistan	Advocating for disseminating credible interventions that capture attention and incentivize engagement could reduce support for vigilantism, particularly in highly polarized contexts.
5	Badrinathan (2021)	Educative Interventions to Combat Misinformation: Evidence from a Field Experiment in India	Increase knowledge about combating misinformation outside the United States, particularly in places with low education, by accelerating Internet access and encrypted information sharing.
6	Cheng et al. (2024)	Strategies for Integrating Civic Education and Traditional Chinese Culture in Colleges and Universities under the ARCS Model for Nurturing People	The ARCS model of college civic education integrates traditional culture according to the ARCS model.
7	Dahnial et al. (2023)	Technology Pedagogical Content Knowledge-based learning model in Citizenship Education courses	The readiness of each educator to use knowledge-based learning models of technological pedagogic content in Civics learning.
8	Devi et al. (2022)	Learning in the digital era: Analysis of civic education learning materials for students in junior high school	Analysing technology-integrated civic education materials in junior high schools in Banten Province, highlighting the importance of creative, innovative learning for students in the digital era.
9	Donkoh et al. (2024)	Teaching Citizenship Education in Ghana Basic Schools: The Quest to Achieve Patriotism and Democracy	Teaching citizenship education, effectiveness, identifies challenges, and provides teacher support to improve its teaching and impact.
10	Dunaway et al. (2021)	The effect of digital citizenship on negative online behaviours and learning outcomes in higher education	Extending digital citizenship behaviour to educational settings to help mitigate the impact of harmful behaviours on student learning outcomes.
11	Ghavifekr et al. (2014)	ICT Integration in Education: Incorporation for Teaching & Learning Improvement	The level of computer skills and primary school teachers' knowledge in the teaching and learning process.

12	Grön & Nelimarkka (2020)	Party Politics, Values, and the Design of Social Media Services	Elites' perspectives can expand existing concepts for studying ordinary people and address challenges in prioritizing political over economic interests in social media design.
13	Harmanto et al. (2023)	Characteristics of Citizenship: Digital Access and Digital Literacy, Civic Education Teacher in Surabaya City	Characteristics of Civic Education teachers regarding digital access and digital literacy in Surabaya.
14	Harris et al. (2022)	Civic Engagement and People with Disabilities: The Role of Advocacy and Technology	To develop and enhance civic knowledge and practices of people with disabilities using technology.
15	Hrytsenchuk et al. (2021)	The efficiency of using the information and digital learning environment to develop teachers' civic competence.	Description of criteria, levels, and descriptors of assessment of civic competence of a teacher in an information and digital learning environment.
16	Japar et al. (2021)	Interactive Mobile Technologies on Civic Education Learning in Higher Education.	Developing mobile learning in civic education in higher education
17	Japar et al. (2024)	Students' Perspectives on Civic Education through Digital Citizenship in The Virtual Era	Determine Indonesian students' perspectives on digital citizenship skills.
18	Jing (2024)	Integration Development of Civic Education and Student Management in Colleges and Universities Based on Combining Data Fusion Model in the Context of Exquisite Parenting	Explore the design of an educational early warning mechanism based on the fusion of ideological education and multi-featured data.
19	Karuri-Sebina & Mutua (2023)	Civic Tech in Southern Africa: Alternative Democracy and Governance Futures?	Emerging Roles of Civic Technology ('Civic Tech') in the Southern African Democracy and Governance Landscape
20	Kartini & Dewi (2024)	Development of the Citizenship Education Method in Fostering Digital Citizenship Through Information and Communication Technology in Schools	Strategies for developing PKN methods to foster digital citizenship by utilizing information and communication technology in schools
21	Saleh et al. (2021)	Civic Education Learning in the 21st Century Skills-Based Digital Era	Students' needs, the conceptual model, and the generation of a living values-based digital learning resource model in Civic Education.
22	Saleh et al. (2022)	Students' Perceptions of Civic Engagement in ICT Skills-Based Citizenship Education Learning	To analyse the students' needs in the conceptual model and generate a living values-based digital learning resource model in Civic Education.
23	Komalasari (2019)	Living Values-Based Interactive Multimedia in Civic Education Learning	Develop and validate a living values-based interactive multimedia model in Civic Education learning.
24	Luo (2022)	Retracted: The Optimization of Civic Education with the Assistance of Artificial Intelligence Devices	Strategies for optimization in terms of improving digital core risk response capabilities, establishing reliable technology risk response mechanisms, and maintaining a foundation for civic education response costs.

25	Lu (2024)	Practical Innovation of Students' Civic Education Model Based on Artificial Intelligence Technology	Student management and civic education by selecting colleges and universities in M City for research
26	Luthfi et al. (2023)	Technology, Pedagogy, and Content Knowledge Model for Increasing Civic Education Teachers' Competencies in the Classroom	The knowledge and skills of social studies teachers at the middle and high school levels in transmitting TPACK.
27	Maesaroh & Masyitoh (2021)	Hybrid Learning in Civic Education During the COVID-19 Pandemic in an International School	Hybrid learning is an effort to increase students' focus and motivation by combining limited face-to-face and distance learning, by applying technology-based learning.
28	McDevit & Kiousis (2006)	Deliberative Learning: An Evaluative Approach to Interactive Civic Education	Provide a theoretical rationale for future research on political learning as a process of deliberative development.
29	Misan-Ruppee et al. (2024)	Innovative instructional approach: the effect of information and communication technology-assisted instruction on civic education students' performance	Facilitating the effect of ICTAI on students' scholarly performance.
30	Mulenga & Ng'andu (2022)	Civic Education Teaching Resources and Teacher Preparedness for Secondary School Competency-Based Curriculum in Lusaka, Zambia	Civic Education Teaching Resources and Teacher Preparedness for Secondary School Competency-Based Curriculum
31	Mulyana (2023)	Application of Information and Communication Technology in Citizenship Education Management	Explore and analyse the application of ICT in the context of educational management systems in educational institutions.
32	Nogueira et al. (2009)	Civic Education in Basic School: Problems and Challenges in the Digital Age	analysis of preliminary data of an ongoing study involving Portuguese teachers and students, in the non-disciplinary curricular area of Civic Education
33	Nyathi (2023)	The Role and Place of Citizens in South Africa: A Governance Perspective	to examine the role and place of citizens in South Africa, given the governance
34	Odusanya & Oni (2019)	Civic Education and Pupils' Civic Dispositions in Ghana and Nigeria: A Comparative Analysis	To explore the orientation and reorientation for effective nation-building in Ghana and Nigeria
35	Peart et al. (2022)	Exploring the Role of Digital and Socio-civic Skills for Promoting Youth Participation and Digital Citizenship	Digital and socio-civic skills development to facilitate youth participation.
36	Pramono et al. (2023)	The Relationship Between Teacher Self-Efficacy and the Ability to Integrate Technology Literacy in Civics Learning in Banda Aceh	Relationship between teacher self-efficacy and technology integration in Civics learning.
37	Prayogi et al. (2024)	Model of Civic Education as Moral Education	Moral Education model in Civic Education as a reference for teachers in carrying out Civic Education learning by using the Moral Education model
38	Polizzi (2023)	Internet users' utopian/dystopian imaginaries of society in the digital age: Theorizing critical digital literacy and civic engagement.	Propose a theoretical framework for how critical digital literacy, conceptualized as incorporating Internet users' utopian/dystopian imaginaries of society in the digital age, facilitates civic engagement.

39	Romadhoni & Rejekiningsih (2024)	The Role of Digital-Based Civic Education Teaching Media in Increasing Students' Readiness to Face the Era of Society 5.0	Digital-based civic education learning media are designed to prepare students for the era of Society 5.0.
40	Saleh et al. (2022)	Students' Perceptions of Civic Engagement in ICT Skills-Based Citizenship Education Learning	Overview of 21st-century skills-based Civics learning using an ICT model to develop students' digital literacy skills in shaping aspects and civic competencies required in society.
41	Saleh et al. (2021)	Civic Education Learning in the 21st Century Skills-Based Digital Era	Learning model of citizenship education in the digital era, and to foster a skill-based understanding of student learning literacy in the 21st century.
42	Santoso (2021)	Civic Education Based on 21st Century Skills in Philosophical, Theoretical, and Futurist Resolution Dimensions at Muhammadiyah University of Jakarta.	SWOT analysis within the model of Citizenship Education courses in 21st-century skills-based Higher Education from 1961-2013.
43	Schulz et al. (2022)	Assessment Framework IEA International Civic and Citizenship Education Study 2022	A framework to help in civic and citizenship education.
44	Sebastián et al. (2021)	Digital Citizenship: Fighting the Digital Divide.	The eradication of the digital divide is significant in increasing the participation of marginalised groups in civic activities.
45	Sutoyo (2020)	The Effectiveness of Information and Communication Technology (ICT) in Civic Education Learning	ICT in Civic Education Learning at Senior High School.
46	Tagmat et al. (2023)	Promoting Active Citizenship Through Civic Education and Active Online Participation of Youth Role Models: The Case of Action Project	Piloting outcomes in schools and community-based education settings as an alternative approach to closing the digital gap and promoting active citizenship for disadvantaged youth.
47	Thelma (2024)	Harnessing Information Communication Technology in Civic Education, Teaching and Learning: A Comprehensive Review	Multifaceted role of ICT in enhancing the efficacy and relevance of Civic Education instruction
48	Triyanto et al. (2023)	Civic education teachers' role in transformation during the COVID-19 pandemic	Teachers' role in the transformation of online teaching during the COVID-19 pandemic
49	Wang et al. (2022)	A Study on the Integration of Civic Education with Dual Innovation Education in Ethnic Colleges and Universities to Promote High-Quality Development of Professional Education in the Background of "Internet+"	Using the internet to promote civic education during COVID-19
50	Yuniarto et al. (2024)	The Dynamics of Civic Education in Building Social Awareness in The Digital Era.	Prioritising education and media literacy efforts and fostering collaboration among educational institutions is essential in harnessing the potential of social media for civic education.
51	Zhang (2023)	Analysis of the integration of traditional culture and Civic	Bilinear interpolation calculates the aspect ratio between the original and target feature maps.

		Education based on the complete convolutional net model	
52	Zhang et al. (2022)	Rethinking civic education in the digital era: How media, school, and youth negotiate the meaning of citizenship	The evolving notion of civic education that resulted from technological advancement

The dominant issues that have received the most attention include the development or application of models and the use of theoretical frameworks for civic education and associated technology (Prayogi et al., 2024; Santoso, 2021; Cheng et al., 2024; Luthfi et al., 2023; Saleh et al., 2021; Komalasari et al., 2019; Komalasari et al., 2021; Polizzi, 2023; McDevitt & Kiousis, 2006). The results show that model development, application, and the establishment of theoretical frameworks have been the most frequently explored themes by researchers examining civic education and ICT integration between 2006 and 2024. The study identified the dominant research direction regarding ICT integration in civic education. The following discussion examines this trend within the broader context of the digital transformation of civic education.

This dominance may be attributed to the relatively recent and emerging role of technology in civic education. Few models have existed that adequately merge the concepts of ICT and civic education. Therefore, researchers have focused on addressing this knowledge gap. Existing models, such as TPACK (Mishra & Koehler, 2006), have been tested using empirical data from the field. While other issues related to the growing role of ICT in civic education have been explored, the volume of work in those areas remains relatively small compared to studies on model development.

The use of models and theories in civic education, particularly concerning ICT, aims to engage citizens in governance and learning by exposing them to effective governance indicators. Teaching and learning civic education with ICT integration must be grounded in solid theoretical foundations to ensure success. This indicates that future studies are likely to continue relying on established models and theoretical frameworks. Such frameworks are essential for explaining the philosophical underpinnings of ICT integration in civic education. Without this foundation, ICT integration risks lacking depth and coherence. Civil society, in most cases, seeks to understand the rationale behind any given intervention. Therefore, the choice of ICT tools and theoretical models to engage communities must be based on comprehensive, context-specific parameters to ensure maximum impact.

The limitations of the findings stem from the sources of data, which were drawn from Google Scholar and the CORE database and covered the years 2006 to 2024. As a result, the analysis is limited to this specific timeframe. Additionally, the data used were secondary, as this systematic literature review relied on publications by various authors. Finally, the results were constrained to the literature available online. Having examined the key trends and research patterns, we now synthesize the implications of these findings for the future development of ICT-integrated civic education.

CONCLUSIONS

Summary of major findings point to the fact that ICT integration in civic education has been growing over the years, and in 2024, it saw its highest publication, signifying the focus of research studies in that area of interest. Also, the study found that the highest number of publications with respect to ICT integration in civic education was from Indonesia, with 17 publications. The most common research design that has been adopted for the studies relating to ICT integration in civic education was descriptive (11, representing 21.15%). Though other research designs have been utilized, the data suggested they were in the minority

when it comes to ICT integration in civic education studies spanning from 2006 to 2024. The data showed that 35 (67.31%) of the papers published did not indicate the kind of research design that was used. Such a quantum (35 papers) of unreported designs was too much to be ignored.

The identified research gap and limitation were the limited number of theoretical frameworks to guide research work in civic education, with a particular focus on ICT integration. The future implications of the finding pointed to the fact that more research publications should be focusing on ICT integration in civic education, the extent of integration, and the challenges associated with ICT policies across the globe. There is a notable scarcity of research on the use of ICT integration in civic education and its impact on communities and towns for civic engagement needs. This would bridge the knowledge gap on the use of ICT for integration in civic education. Research on ICT integration in civic education would therefore broaden the scope and direction of civic engagement among citizens. Also, the implication of more publications coming from Singapore on civic engagement by the citizenry could be a trend in other countries, including Ghana, in the years to come. Future research implications are that more theoretical framework development should be the focus for researchers on ICT integration in civic education delivery.

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CONFLICTS OF INTEREST

The authors have declared no conflict of interest while collecting data, analysing data, and disclosing individuals' personalities.

AUTHOR CONTRIBUTIONS

Cosmos Kwaku Nutakor: Conceptualization, data collection, drafting, error correction, and coordination. **Dr. Eric Opoku Osei and Dr. Patrick Swanzy**: Review and guidance on the overall direction of the study.

DATA AVAILABILITY STATEMENT

Data available on request from the authors.

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