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SYSTEMATIC REVIEW

A Systematic Review of Tiktok-Based Gamification for Civic Education Among Generation Z

Una revisión sistemática de la gamificación basada en TikTok para la educación cívica entre la Generación Z

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ABSTRACT

This research presents a systematic review of empirical studies addressing the integration of TikTok-based gamification in civic education aimed at Generation Z. As digital natives, Gen Z has distinctive learning patterns and is heavily influenced by mobile technology and social media. TikTok, with its participatory and algorithmic features, offers unique potential to enhance political literacy, learning motivation, and civic engagement when combined with gamification strategies. This review was conducted based on the PRISMA 2020 guidelines by searching the literature in three databases: Scopus, ScienceDirect, and ERIC. Of the 616 identified articles, a screening and selection process based on inclusion criteria using the PICOS framework yielded 19 empirical articles eligible for thematic analysis. The selected articles were peer-reviewed publications published between 2021 and 2025. The analysis shows that TikTok-based gamification positively impacts Gen Z's political awareness, learning motivation, and engagement in democratic processes. Effective strategies include the use of AR filters, short videos, storylines, reward systems, and integration into digital learning platforms. However, challenges were also identified, such as algorithmic bias, low critical digital literacy, and institutional resistance to the use of social media in formal education. This study provides conceptual contributions in mapping theoretical foundations and implementation models, as well as practical contributions to the development of contextual, inclusive, and adaptive citizenship learning strategies for the characteristics of the digital generation.

Keywords: Civic Education; Gamification; Generation Z; Political Literacy; TikTok.

RESUMEN

Esta investigación presenta una revisión sistemática de estudios empíricos que abordan la integración de la gamificación basada en TikTok en la educación cívica dirigida a la Generación Z. Como nativos digitales, la Generación Z tiene patrones de aprendizaje distintivos y está fuertemente influenciada por la tecnología móvil y las redes sociales. TikTok, con sus características participativas y algorítmicas, ofrece un potencial único para mejorar la alfabetización política, la motivación de aprendizaje y la participación cívica cuando se combina con estrategias de gamificación. Esta revisión se realizó con base en las directrices PRISMA 2020 mediante la búsqueda de la literatura en tres bases de datos: Scopus, ScienceDirect y ERIC. De los 616 artículos identificados, un proceso de cribado y selección basado en criterios de inclusión utilizando el marco PICOS arrojó 19 artículos empíricos elegibles para el análisis temático. Los artículos seleccionados fueron publicaciones revisadas por pares publicadas entre 2021 y 2025. El análisis muestra que la gamificación basada en TikTok impacta positivamente la conciencia política, la motivación de aprendizaje y la participación en los procesos democráticos de la

Generación Z. Las estrategias efectivas incluyen el uso de filtros de RA, videos cortos, historias, sistemas de recompensa e integración en plataformas de aprendizaje digital. Sin embargo, también se identificaron desafíos, como el sesgo algorítmico, la baja alfabetización digital crítica y la resistencia institucional al uso de las redes sociales en la educación formal. Este estudio aporta contribuciones conceptuales al mapear los fundamentos teóricos y los modelos de implementación, así como contribuciones prácticas al desarrollo de estrategias de aprendizaje de ciudadanía contextualizadas, inclusivas y adaptativas para las características de la generación digital.

Palabras clave: Educación Cívica; Gamificación; Generación Z; Alfabetización Política; Tiktok.

INTRODUCTION

Civic education has long been seen as a strategic step to instill political knowledge, critical thinking skills, and substantial democratic values.[1,2] Various studies show that civic education positively correlates with citizens' political participation, including voting, advocacy, and involvement in the community.[3,4,5] However, in the context of digital democracy, conventional approaches are increasingly losing relevance, especially in reaching the new generation who have digital native characteristics.[6,7,8,9,10]

Generation Z, born between 1997 and 2012, grew up in a digital ecosystem that shaped how they interact, learn, and engage socio-politically differently from previous generations.[11,12] Although Generation Z demographically dominates the voting population in many countries, their political engagement is often symbolic, sporadic, and superficial.[13,14] Low digital citizenship literacy and increased exposure to disinformation and online political polarization pose additional challenges to encouraging meaningful participation among young people.[15,16] In Indonesia, where digital natives make up the majority of voters and TikTok is among the most popular platforms.[17,18,19]

The current situation demands innovation in civics education approaches more adaptive to the digital ecosystem and the participatory learning styles typical of the younger generation. Several studies have explored the potential use of gamification and social media platforms, such as TikTok, in various educational contexts to address this challenge. While most studies still separate the two, initial findings suggest a strategic opportunity to integrate these two approaches in civics education.

Gamification, defined as the application of game design elements in a non-game context.[20] It has been empirically proven to increase student participation, motivation, and learning outcomes in both direct and online learning.[21,22,23,24,25,26,27,28,29] In the context of civic education, gamification enables the delivery of complex material through a fun, experience-based approach.

Meanwhile, TikTok, a popular platform among Gen Z, offers significant potential for fostering digital literacy and political participation. TikTok's architecture, based on short, visual, gamified, and participatory interactions, has proven effective in shaping political discourse and supporting youth activism.[16,30] Several studies have shown that TikTok has been used for microlearning in various fields, ranging from nursing and sociology to digital literacy and language.[31,32,33] TikTok is also considered effective in shaping students' critical thinking and democratic skills.[34,35] However, studies that systematically integrate gamification approaches and the use of TikTok in the context of civic education are still very limited. The existing literature does not provide a comprehensive mapping of the theoretical basis, implementation strategies, and empirical impact on the political literacy and electoral behavior of the digital native generation.

Based on these gaps, this study aims to systematically review the empirical literature related to the application of TikTok-based gamification in civics education. The study focuses on the theoretical foundations used, implementation strategies employed, learning outcomes achieved, and challenges and future research directions. This study is expected to provide conceptual contributions to the development of a contextual, inclusive, and adaptive civics learning approach to the characteristics of the digital generation.

METHOD

This study employed a Systematic Literature Review (SLR) approach, developed based on the 2020 PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines. This approach was used to identify, evaluate, and synthesize empirical findings regarding the use of TikTok-based gamification in civics education for Generation Z.

Inclusion and Exclusion Criteria (PICOS)

Study eligibility was determined using the PICOS (Population, Intervention, Comparator, Outcomes, Study Design) framework. Details of inclusion and exclusion criteria are shown in table 1.

Table 1. Inclusion and Exclusion Criteria for Article Screening

PICOS Element	Inclusion	Exclusion
Population	Study with a focus on Generation Z (Born 1997-2021) or Young Voters	Studies with populations outside this age range
Intervention	The use of gamification in civics education, including through TikTok	Articles in the form of editorials, opinions, book reviews, or those that are not peer-reviewed
Comparator	Studies with or without a comparison group	-
Outcomes	Political literacy, learning motivation, electoral participation, or digital engagement	Studies that did not report relevant results
Studies design	Peer-reviewed empirical study (2021–2025), English language, available in full text	Editorials, opinion pieces, non-scientific articles, or not available in full text

Resources

The literature search was conducted through three international academic databases relevant to the field of education and learning technology:

- Scopus, which includes highly reputable multidisciplinary journals with extensive indexing.
- ScienceDirect, Elsevier's robust platform for peer-reviewed publications in education and digital media.
- ERIC (Education Resources Information Center), a digital library specifically focused on education research and policy.

These three databases were selected because they collectively provide broad coverage, systematic search capabilities (filtered by year, article type, and focus area), and direct access to full text. Although other databases are available, Scopus, ScienceDirect, and ERIC were selected due to their combination of specific strengths in the field under study, review efficiency, and comprehensive metadata that supports systematic procedures such as PRISMA. This approach also follows common practices in systematic literature reviews in education and media studies.

Search Strategy

The search strategy was developed based on the study's focus, namely the integration of gamification and TikTok in civic education. Keywords included: "gamification," "civic education," "political literacy," "TikTok," "social media," and "digital native." A combination of Boolean operators (AND, OR) was used to construct an efficient search syntax, tailored to the characteristics of each database.

Selection Process

All search results were exported to Mendeley software for deduplication. The selection process was conducted in three stages:

1. Deduplication: of the 616 articles identified, 88 duplicate articles were removed.
2. Title and abstract review: of the remaining 528 articles, 480 were eliminated for irrelevance based on two independent reviewers.
3. Full-text review: a total of 48 articles were thoroughly reviewed. 27 of these were eliminated for irrelevance (n = 22), not being in English (n = 3), or not being available in full version (n = 2). Discrepancies were resolved through discussion with a third reviewer.

The entire selection process is visualized in the PRISMA 2020 flowchart, as shown in figure 1.

Data Extraction

Data extraction was conducted using a standardized form designed to ensure consistency across studies. Information collected included study characteristics, research design, theoretical framework, gamification strategies, TikTok features used, and reported learning outcomes. This process was conducted independently by two reviewers and verified through discussion if there were any differences in interpretation.

Data Synthesis

The extracted data was analyzed using a thematic analysis approach. This procedure was carried out by identifying themes, patterns, and relationships between data based on predetermined categories. The synthesis results were arranged narratively based on four main focuses: (1) theoretical framework, (2) implementation strategy, (3) learning impact, and (4) challenges and directions for further research. The presentation of findings was supported by thematic tables to strengthen the clarity of data classification.

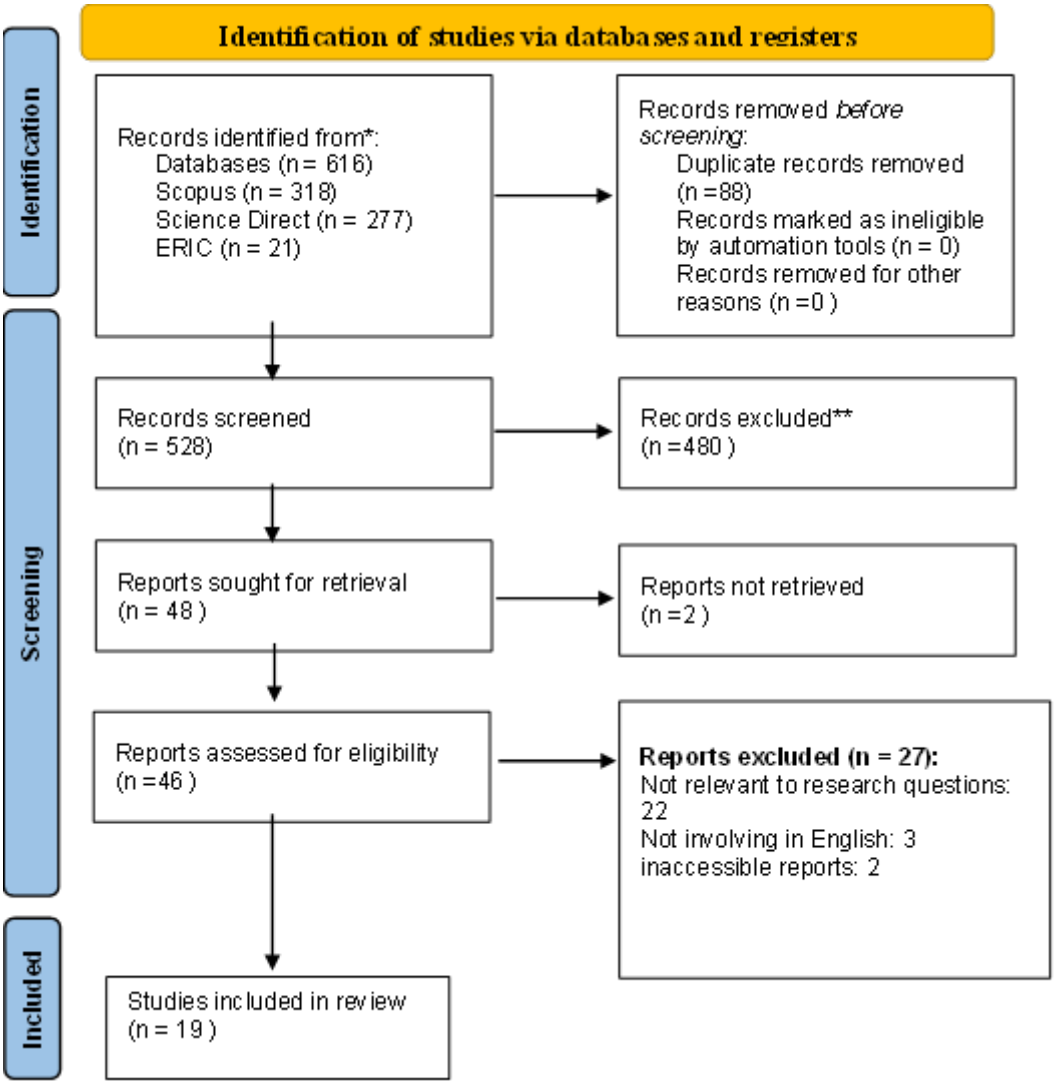

Figure 1. PRISMA 2020 flow diagram for the selection of studies

RESULTS

Overview of Reviewed Publications

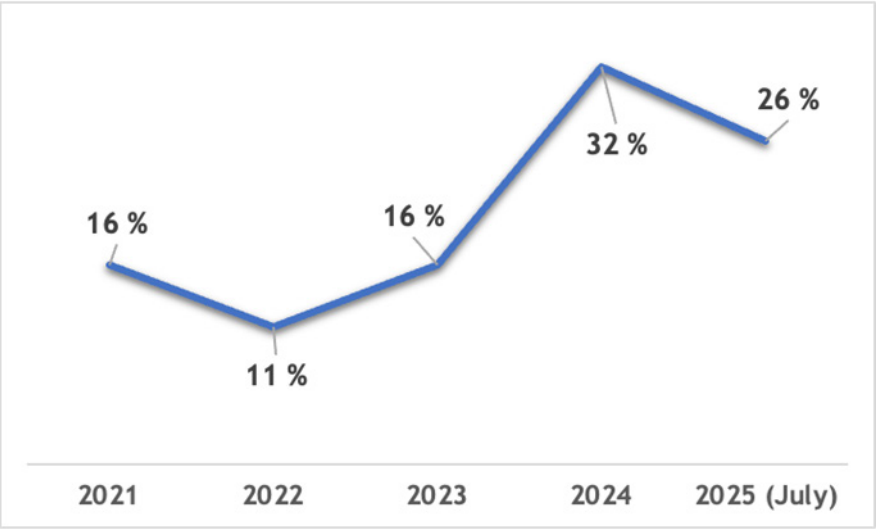

Figure 2. Distribution of publication years of reviewed studies (2021–2025)

A total of 19 empirical articles published between 2021 and 2025 met the inclusion criteria and were

included in this systematic review. An initial analysis was conducted on publication characteristics, including the distribution of articles by year of publication and the geographic distribution of research locations.

Of all the articles reviewed, the highest number of publications was found in 2024 (32 %), followed by 2025 (up to July) with 26 %. 2021 and 2023 each contributed 16 %, while 2022 recorded the lowest number, at 11 %. This distribution is shown in figure 2.

In addition to the temporal distribution, the studies analyzed came from diverse regional contexts. Twenty-six percent of the articles were conducted in developing countries. Meanwhile, 21 % were multinational studies, conducted through cross-border collaborations. Articles from the United States and Spain each accounted for 11 % of the total. Other countries appearing in the data were Vietnam, Taiwan, India, Egypt, the Netherlands, and the United Kingdom, each contributing 5 %. A complete breakdown of the distribution of countries of origin of the reviewed articles can be seen in figure 3.

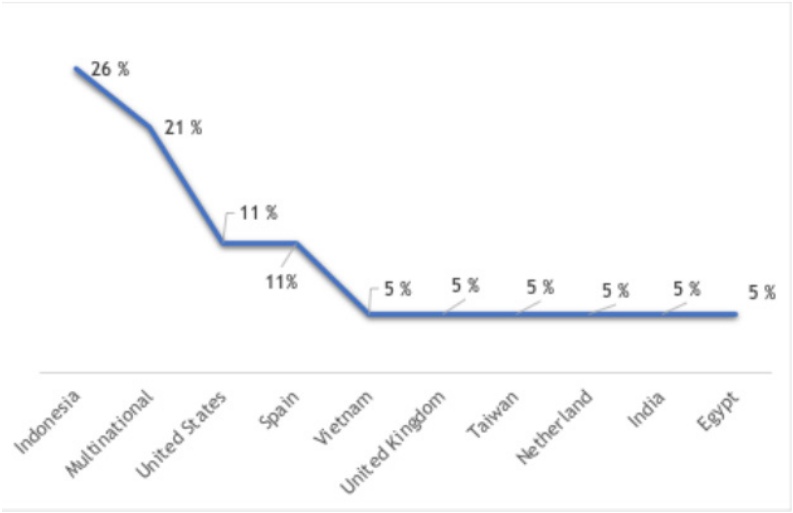

Figure 3. Distribution of countries of origin of reviewed articles (2021–2025)

Theoretical Framework, Models, and Conceptual Approaches

This section presents a synthesis of the theories, models, and conceptual frameworks used in studies related to the application of TikTok-based gamification in civics education. Of the 19 articles reviewed, eight theories, two models, and seven conceptual approaches were found to explain the design, implementation, or evaluation of TikTok-based gamification learning.

Theories Used

Eight theories were identified in the literature. Self-Determination Theory (SDT) was the most frequently used theory (4 articles), followed by Uses and Gratifications Theory (UGT) and Innovation Diffusion Theory (IDT), each appearing in two articles. The other five theories were each used in one article.

Table 2. Summary of Theories Used in Studies on TikTok-Based Gamification for Civic Education

No	Theories	Key Function or Insight	References
1	Uses and Gratifications Theory (UGT)	Explaining user motivations and needs in consuming TikTok content.	(31,36)
2	Self-Determination Theory (SDT)	Explaining intrinsic motivation and cognitive engagement in learning through gamification.	(24,26,27,34)
3	Public Sphere Theory *(Habermas)*	TikTok as a public discourse space competes between political expression and commercialization.	(37)
4	Constructivism & Connectivism	Learning as a process of building knowledge through authentic experiences and social networks.	(32)
5	Democratic Theory	Emphasizing the importance of cross-cutting discussions in digital democracy.	(38)
6	Collective Political Expression	Understanding political participation as digital community-based collective action.	(38)
7	Popular Culture as Shared Symbolic Resource	Popular culture is a shared symbolic medium in digital political communication.	(38)
8	Innovation Diffusion Theory (IDT)	Describes the gradual process of adoption of technological innovation in social systems.	(31,36)

Models Used

Two conceptual models were used to analyze technology acceptance and psychological responses to digital content. The Technology Acceptance Model (TAM) was used in two articles, while the Differential Susceptibility to Media Effects Model (DSMM) was used in one article.

Table 3. Summary of Models Used in the Study

No	Model	Key Function or Insight	References
1	Technology Acceptance Model (TAM)	Explaining technology adoption based on perceived usefulness and ease of use.	(31,36)
2	Differential Susceptibility to Media Effects Model (DSMM)	Explaining individual variations in selecting, responding to, and being influenced by digital media.	(39)

Conceptual Approach and Analytical Framework

Seven conceptual approaches were identified in the reviewed literature. Each approach was used in one article and played a role in learning design, content evaluation, or digital participation measurement.

Table 4. Summary of the Framework Used in the Study

No	Framework/Approach	Key Function or Insight	References
1	Multimodal Approach	Analyzing TikTok content's combination of communication modes (text, image, sound, motion).	(15)
2	Affordance-Based Approach	Explains how TikTok features facilitate political interaction and expression.	(15)
3	Multimodal Content Analysis	Systematic analysis techniques for visual and verbal content in digital media.	(15)
4	Three Levels of Interaction	Classifying the level of political involvement as passive, expressive, or participatory.	(15)
5	Digital Citizenship Standards	A benchmark for measuring digital literacy, privacy awareness, and online participation of young people.	(33)
6	Self-Directed Learning (SDL)	A framework for understanding learning autonomy in digital environments.	(34)
8	Three-Phase Game-Based Learning Framework	Covers three stages (training, design, play) in game-based learning integration.	(28)

These findings indicate that studies on TikTok gamification in civic education utilize diverse conceptual approaches. Theories and models are used to explain intrinsic motivation-based learning engagement, technology adoption, and digital political participation among young people. Approaches such as Self-Determination Theory, Technology Acceptance Model, and the Multimodal framework play a role in designing interactive learning content that aligns with the characteristics of digital natives.(24,27,31) In addition, theories such as Collective Political Expression and the Digital Citizenship Standards framework demonstrate attention to the ethical, social, and participatory dimensions of digital civic education.(16,33) This diversity of approaches provides a starting point for understanding the design of TikTok gamification strategies, which will be discussed in the next section.

Strategy for Implementing TikTok Gamification in Citizenship Education

Of the 19 articles analyzed, eight categories of strategies were identified for implementing TikTok-based gamification for civics learning. These strategies reflect a combination of classic gamification mechanisms and the use of interactive social media features. A summary of these strategies is presented in table 5.

The identified implementation strategies show a tendency to combine classic gamification elements such as points and challenges with the social and visual features available on TikTok. User design-based approaches and simulative narratives appear in a greater number of studies, indicating strong pedagogical relevance in Gen Z learning contexts.(27,28,34) Meanwhile, strategies such as LMS integration and cross-platform distribution are still limited to specific studies, but demonstrate the flexibility of the approach to diverse digital learning contexts.(28,36) This pattern of findings provides a basis for further examining the impact of strategy implementation on political literacy, learning motivation, and electoral participation.

The Impact of TikTok Gamification on Political Literacy, Learning Motivation, and Electoral Participation

An analysis of 19 articles shows that the TikTok-based gamification approach has a positive impact on three

key aspects of digital citizenship education: political literacy, learning motivation, and electoral participation. These findings are summarized in table 6 below.

Table 5. Implementation Strategies of TikTok-Based Gamification in Civic Education

No	Strategy Category	Implementation Example	Source(s)
1	TikTok AR	Text-based AR filters featuring quiz overlays and randomizers	(39)
2	User-Centered Design	Intuitive interface, real-time feedback, adaptive learning paths	(27,28,34)
3	Core Gamification Mechanics	Points, badges, leaderboards, challenges, progress bars, virtual rewards	(27,28)
4	Narrative & Simulation	Story-based avatars, role-playing civic duties, interactive voting simulations	(28,34)
5	LMS Integration & Peer Collaboration	Embedding TikTok content into Moodle; fostering peer interaction and digital civic discourse	(28)
6	Microlearning & Visual Effects	Short videos with storytelling, transitions, effects, and musical cues	(31,36)
7	Social & Algorithmic Features	Duets, hashtags, comments, instructor accounts, optimization via TikTok's For You Page (FYP)	(30,31)
8	Cross-Platform Distribution	Mobile-first content accessible anytime/ anywhere, shared across multiple platforms	(36)

Table 6. Empirical Impact of TikTok Gamification

Impact Aspect	Findings	References
Political Literacy	Increased understanding of basic political concepts and awareness of public issues through gamification content	(32,33)
	Active participation in digital political discussions increases after exposure to interactive content.	(36,39)
Learning Motivation	Gamification content increases engagement and interest in citizenship materials.	(28,34)
	The presence of elements of reward and challenge fosters intrinsic motivation.	(26)
Electoral Engagement	Increased voting intention and awareness of political rights after interaction with TikTok content	(15,40)
	Users are encouraged to follow the campaign and register as voters.	(24,30)

Most studies report that challenge-based approaches, simulations, and interactive quizzes are effective in improving political understanding and critical thinking skills. The use of reward systems, personalized learning paths, and visualization of progress play a role in increasing intrinsic motivation.[27,34] Furthermore, electoral participation is not only manifested in the form of voting intentions, but also through digital political activities such as creating campaign content, sharing election information, and interacting in public discussions on TikTok.[26,32,39]

Implementation Challenges, Methodological Limitations, and Further Research Directions

The analyzed studies also revealed a number of challenges related to the implementation of TikTok gamification, methodological limitations in research design, and recommendations for further research directions.

Key challenges include the conflict between the entertainment-oriented nature of social media and the reflective learning objectives. TikTok often facilitates high engagement but does not always align with the achievement of substantive learning outcomes.[34,39] Furthermore, low critical digital literacy and passive consumption habits exacerbate the gap between interactivity and depth of understanding.[24,32]

Several studies note research designs that are exploratory, short in duration, and lack consideration of cultural context and disparities in digital infrastructure, particularly in non-urban areas.[16,35] Institutional barriers such as resistance to social media in the classroom and inadequate teacher training also hinder the widespread integration of these strategies.[24,27]

In response, several studies recommend the development of participatory and locally context-based learning

designs.[28,38] The conduct of longitudinal studies to measure changes in citizenship behavior over time, and the adoption of interdisciplinary approaches that combine critical pedagogy, media psychology, and political communication.[30,32,41]

Table 7. Summary of Challenges, Limitations, and Future Research Directions

Category	Findings	References
Implementation challenges	The mismatch between TikTok's features and pedagogical goals; the algorithm accelerates distraction	(33,34,39)
	Low digital literacy and passive consumption culture	(24,32)
Methodological limitations	Short intervention duration, small sample size, no longitudinal studies	(35,36,41)
	Lack of triangulation approach and neglect of local cultural context	(16,27)
Institutional barriers	Lack of teacher training, uneven digital infrastructure, and resistance to social media	(24,35)
Future research directions	Participatory and local context-based design development	(28,38)
	Longitudinal and comparative studies across regions, an interdisciplinary approach	(30,32,41)

DISCUSSION

This study systematically examines the application of TikTok-based gamification in civics education for Generation Z through 19 empirical articles published between 2021 and 2025. The results indicate that this approach combines a multidisciplinary theoretical framework and a social media-based implementation strategy, positively impacting political literacy, learning motivation, and electoral participation.[24,27,30,34,36] The analyzed studies utilize theories such as Self-Determination Theory (SDT) to explain learners' intrinsic engagement [24,26,27,34] and the Technology Acceptance Model (TAM) to evaluate technology acceptance in civics learning contexts.[31,36] Commonly used gamification strategies include points, challenges, badges, and the integration of TikTok features such as AR filters, educational short videos, and the For You Page (FYP) algorithm.[27,28,30,39] The impact is reflected in an increased understanding of citizenship concepts and digital political engagement. However, several challenges arise, including methodological limitations, uneven digital infrastructure, and institutional resistance to the use of social media in educational contexts.[24,27,35] The integration of TikTok into citizenship education reflects a paradigm shift in pedagogical practices tailored to the digital native generation. The use of SDT consistently demonstrates that reward-based, challenge-based, and personalized approaches play a role in simultaneously meeting learners' cognitive and affective needs.[24,26,27,34] A study by Behl et al. for example, linked direct gamification elements to increased autonomy- and competency-based learning engagement. Implementation strategies such as narrative-based simulations, AR-based quiz filters, and content integration into a Learning Management System (LMS) have been shown to increase students' emotional and social engagement in the learning process.[15,28,34] This is consistent with the principles of constructivism and connectivism, which view learning as a process of constructing meaning through experience and social networks. In the context of digital political participation, the results show that students are not only exposed to political content but also actively contribute to it through the creation of campaign content and online discussions. This reinforces the findings of Literat & Kligler-Vilenchik that TikTok has become a primary platform for youth political expression, blurring the lines between entertainment and activism. However, TikTok's algorithmic design, such as the FYP, also carries risks. Several studies warn that preference-based content personalization can actually limit students' exposure to important civic issues, thereby reducing the depth of critical thinking.[30,33,39] In this context, it is important to balance pedagogical design with the technological characteristics of the platform. These findings provide an important contribution to the development of more adaptive digital citizenship education. Theoretically, the diversity of theories used reflects the need for a more holistic and integrated conceptual model, as suggested by Rinjeni[24] and Kuo et al.[28], to simultaneously evaluate cognitive, affective, and participatory aspects. In practice, TikTok has proven to be a compelling learning platform if its gamification strategy aligns with the dynamics of Gen Z's digital culture. Microlearning approaches based on short videos, storytelling, humor, and viral challenges are not only relevant but also effective in conveying civic messages.[31,36,39] From a policy perspective, these results indicate that the integration of social media into education needs to be facilitated by teacher training, curriculum support, and comprehensive digital literacy policies. Several studies highlight the importance of creating education policies that not only accept the existence of social media but also utilize it critically and strategically.[16,24,35] There are several important limitations to this study. First, most of the articles analyzed were exploratory in nature and did not use a longitudinal design, thus insufficiently assessing long-term impacts.[35,36,41] Second, the study context is still dominated by urban areas and countries with adequate digital infrastructure, thus underrepresenting the

reality of education in underdeveloped regions.[16,27,35] Third, several articles also point out limitations in the methodological approach, including a lack of triangulation and neglect of local cultural context.[16,27] To address this, it is recommended that future research adopt a longitudinal and participatory design, where learners are not only subjects but also co-creators of gamification content.[28,38] Cross-regional comparative studies and interdisciplinary approaches that combine critical pedagogy, media psychology, and political communication will enrich understanding of the relationship between technology, political education, and youth participation in the digital era.[30,32,41]

CONCLUSIONS

This systematic review confirms that TikTok-based gamification has significant potential to revitalize civic education for Generation Z. By integrating game design elements and TikTok's unique interactive features, this approach has been shown to enhance political understanding, learning motivation, and youth participation in digital contexts. However, its effectiveness depends heavily on the alignment between pedagogical objectives, learner preferences, and the evolving dynamics of digital media. The review also uncovered several important limitations in the existing literature, including the absence of longitudinal studies, the lack of participatory design approaches, and insufficient attention to cultural context and disparities in access to infrastructure. These limitations limit the generalizability and practical application of gamification approaches across diverse learning environments. Therefore, further research needs to be directed at developing collaborative and contextual learning designs, training teachers in the use of digital media, and strategies for more systematically integrating gamification into formal civic education curricula. Amidst the complexities of today's digital democracy, TikTok has the potential to be a strategic bridge to bring democratic values closer to the younger generation, provided the approach is designed critically, inclusively, and based on a deep understanding of the characteristics of the digital native generation.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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