

RESEARCH ARTICLE

Educational leadership, political communication, and students' civic participation in the digital political era: The mediating role of digital citizenship

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ABSTRACT

Purpose - This study examined whether educational leadership and political communication are associated with Indonesian secondary students' civic participation directly and indirectly through digital citizenship.

Method - A cross-sectional survey involved 262 eligible students recruited purposively from cooperating public and private secondary schools. Four constructs were measured with an 80-item questionnaire. The measurement and structural models were tested using partial least squares structural equation modeling with 5,000 bootstrap resamples.

Findings - All five direct relationships were positive and significant. Political communication had the strongest direct association with digital citizenship ($\beta = 0.587$, $p < 0.001$), followed by digital citizenship with civic participation ($\beta = 0.348$, $p < 0.001$). Educational leadership and political communication were also indirectly associated with civic participation through digital citizenship ($\beta = 0.104$ and $\beta = 0.204$, respectively; both $p < 0.001$). The model explained 70.7% of digital citizenship and 71.9% civic participation.

Conclusion and Implications - Digital citizenship connects institutional leadership and students' political communication with meaningful civic participation. School leaders should embed information verification, ethical digital dialogue, and civic inquiry across policy, curriculum, and student activities. Longitudinal and multi-informant research is needed to test temporal ordering and reduce self-report bias.

Keywords: Character education policy; digital citizenship; digital well-being; self-regulation; responsible online behavior.

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INTRODUCTION

Digital technologies have altered how citizens obtain information, communicate, and participate in public life. Social media and interactive news platforms have moved political communication from predominantly one-way transmission toward participatory exchanges in which adolescents can discuss issues, express positions, and organize civic action (Lilleker & Koc-Michalska, 2017; Middaugh et al., 2024). For Generation Z, these platforms are important environments for political learning and participation (Amin et al.,

2025; Santos et al., 2025). This shift gives schools a responsibility to prepare students for informed, ethical, and constructive participation in digitally mediated democracy.

Greater access to political information does not automatically produce informed civic participation. Students may encounter false or decontextualized claims, selective exposure, algorithmic echo chambers, polarizing narratives, hate speech, and emotionally driven content that discourages verification (Dal & Nisbet, 2022; Passe et al., 2018; Sharma et al., 2026). Unequal digital skills and privacy concerns can also limit participation even when access is available (Hoffmann & Lutz, 2021). Schools must therefore develop critical evaluation, information verification, ethical communication, and an understanding of the consequences of online action (Mirra et al., 2022; Shi et al., 2023).

Within this context, civic participation has become one of the primary educational outcomes expected from contemporary schooling. Civic participation extends beyond involvement in elections or political organizations; it encompasses students' willingness to contribute to school governance, community development, public deliberation, voluntary activities, and collective problem-solving. Democratic societies increasingly depend on young citizens who are capable of collaborating across differences, participating responsibly in public discussions, and addressing complex societal challenges through constructive civic engagement. Consequently, many educational systems have begun integrating civic education with digital learning environments to cultivate democratic competencies suited to the digital era (Bowyer & Kahne, 2020; Middaugh et al., 2024; Guo, 2026; Vetrivel et al., 2026).

Political communication constitutes one of the most influential mechanisms shaping students' civic participation. Contemporary political communication is no longer confined to formal governmental institutions or traditional mass media but increasingly occurs through social networking platforms where students encounter diverse viewpoints, discuss public issues, evaluate governmental policies, and express civic concerns. Previous research consistently demonstrates that active engagement in political communication enhances political efficacy, civic awareness, and democratic participation by increasing individuals' opportunities to access information and interact with broader civic communities (Lilleker & Koc-Michalska, 2017; Hoffmann & Lutz, 2021; Dal & Nisbet, 2022). More recent studies further indicate that digital media substantially expand opportunities for political engagement among young people, although the quality and outcomes of such engagement depend on individuals' ability to critically evaluate digital information and participate responsibly in online discourse (Liu, 2025; Sharma et al., 2026). Evidence from Indonesia also demonstrates that political discussions conducted through WhatsApp groups positively contribute to the development of students' digital citizenship by encouraging responsible communication, critical reflection, and civic awareness in digital interactions (Hadian et al., 2025).

Political communication does not lead automatically to constructive civic action. Online exposure can strengthen knowledge and efficacy, but manipulated information, selective exposure, and emotionally charged expression can also produce superficial participation or distrust (Dal & Nisbet, 2022; Hoffmann & Lutz, 2021; Passe et al., 2018).

Digital citizenship provides a plausible mechanism because it combines critical media judgment, ethical responsibility, and participatory competence (Law & Lee, 2022; Shi et al., 2023). These capacities help students convert political information and discussion into respectful, evidence-based civic engagement.

The growing importance of digital citizenship has simultaneously expanded the strategic role of educational leadership. School leaders are expected not only to improve instructional quality and organizational effectiveness but also to establish school cultures that encourage democratic dialogue, responsible technology use, critical thinking, and civic responsibility. Digital transformation requires educational leaders to formulate clear digital visions, promote ethical technology integration, support teachers' digital competencies, and create learning environments that foster students' democratic participation. Recent empirical studies demonstrate that digital leadership positively influences teachers' instructional innovation, technology integration, digital competence, and students' learning experiences (Baldera et al., 2025; Abu-Tineh et al., 2025; Yang et al., 2025; Antonopoulou et al., 2025; Xu, C et al. 2025). Emerging evidence also suggests that strategic educational leadership plays a decisive role in strengthening digital citizenship by aligning institutional vision, fostering collaborative digital culture, and modelling ethical technology use across educational settings.

The literature remains divided across three lines of inquiry. Educational leadership research has emphasized technology integration, teacher competence, and organizational readiness, with less attention to students' democratic outcomes (Abu-Tineh et al., 2025; Antonopoulou et al., 2025; Yang et al., 2025). Political communication studies have examined expression, efficacy, and participation, but rarely model school leadership as an institutional antecedent (Dal & Nisbet, 2022; Hoffmann & Lutz, 2021; Santos et al., 2025). Digital citizenship research has concentrated on literacy, safety, ethics, and civic competence, while evidence about its mediating role between school conditions, political communication, and civic participation remains limited (Law & Lee, 2022; Shi et al., 2023; Vallès-Peris & Domènech, 2024).

The Indonesian context further strengthens the importance of this investigation. Indonesian adolescents represent one of the world's largest populations of active social media users, making digital platforms a dominant source of political information and civic interaction. At the same time, concerns regarding misinformation, digital ethics, political polarization, and responsible civic participation continue to increase. Although the Indonesian education system has strengthened civic education through the implementation of the Pancasila Student Profile and digital learning initiatives, empirical evidence explaining how educational leadership contributes to students' civic participation through political communication and digital citizenship remains limited. Existing Indonesian studies have primarily explored media literacy, civic education, or family communication separately rather than integrating these constructs into a comprehensive educational leadership model (Muhibbin et al., 2022; Agus et al., 2025).

Existing studies have therefore established relevant pairwise relationships without fully explaining how the institutional and communicative environments of secondary

students operate together. Studies of online political participation frequently focus on university students or electoral behavior (Muhibbin et al., 2022; Younis et al., 2026), while school-based digital citizenship research rarely tests leadership and political communication within one mediation model. The present study addresses this gap by positioning digital citizenship as the mechanism through which educational leadership and political communication are associated with students' civic participation.

Accordingly, the study tests five direct hypotheses linking educational leadership, political communication, digital citizenship, and civic participation, together with two indirect hypotheses in which digital citizenship serves as mediator. This integrated model extends leadership research toward democratic capacity building and identifies school practices that can connect students' digital political experiences with responsible civic action.

THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

Educational Leadership and Digital Citizenship

Educational leadership refers here to students' perceptions of leaders' digital vision, democratic communication culture, support for digital citizenship, and protection of student participation. Digital leadership theory views school leaders as institutional actors who align vision, policy, professional learning, and organizational support around responsible technology use (Abu-Tineh et al., 2025; Yang et al., 2025). Digital citizenship comprises critical digital thinking, ethical responsibility, local and global awareness, and civic digital participation (Law & Lee, 2022; Shi et al., 2023).

Leaders can strengthen these competencies by establishing expectations for information verification and respectful online conduct, supporting teachers' digital pedagogy, and providing protected spaces for inquiry and dialogue. Such practices turn technology from an administrative resource into a context for ethical and participatory learning. Leadership should therefore be associated with students' capacity to judge information, communicate responsibly, and participate constructively online.

Empirical work links digital leadership with stronger digital competence, technology integration, and responsible learning environments (Antonopoulou et al., 2025; Baldera et al., 2025; Xu, C., et al. 2025). Although much of this evidence concerns teachers and organizational capacity, its institutional mechanism supports an extension to students: policies and cultures enacted by leaders shape the opportunities through which digital citizenship is learned. Accordingly:

Theoretically, these findings suggest that educational leadership functions as an institutional driver that creates favourable conditions for the development of students' digital citizenship. Accordingly, the following hypothesis is proposed:

H1. Educational leadership positively influences students' digital citizenship.

Educational Leadership and Students' Civic Participation

Civic participation refers to civic attitudes and students' involvement in school, community, and democratic activities. Democratic leadership theory proposes that

openness, shared decision-making, and dialogue create authentic opportunities to learn participation through practice. Leadership is therefore relevant not only to organizational performance but also to students' efficacy, responsibility, and willingness to contribute to collective decisions (Bowyer & Kahne, 2020; Vallès-Peris & Domènech, 2024).

Principals influence participation by legitimizing student voice, supporting representative organizations, enabling community projects, and encouraging deliberative classroom practices. When students experience accessible decision-making and see their contributions taken seriously, civic action becomes a practiced school norm rather than an abstract curricular ideal.

Research on digital civic learning shows that structured opportunities for voice, inquiry, and collaboration are associated with stronger civic engagement (Bowyer & Kahne, 2020; Middaugh et al., 2024). This evidence supports the expectation that participatory and digitally supportive leadership will be positively associated with students' civic participation. Therefore:

H2. Educational leadership positively influences students' civic participation.

Political Communication and Digital Citizenship

Political communication is defined as students' seeking, discussing, expressing, and verifying information about public issues through digital media. Unlike traditional exposure, interactive platforms allow adolescents to be both consumers and producers of political content (Lilleker & Koc-Michalska, 2017; Santos et al., 2025). These activities can develop digital citizenship when they require source evaluation, perspective taking, and accountable expression.

Discussion and verification expose students to competing claims and require them to distinguish evidence from manipulation. Expression also makes the ethical consequences of communication visible because students must negotiate disagreement, accuracy, privacy, and respect. Political communication can thus function as informal civic learning when supported by critical media literacy (Gonzalez-Mohino et al., 2023; Mirra et al., 2022).

Prior studies connect online political communication with efficacy, participation, and critical engagement (Dal & Nisbet, 2022; Hoffmann & Lutz, 2021; Liu, 2025). Hadian et al., (2025) likewise demonstrate the educational relevance of web-based political participation. Together, this evidence indicates that repeated engagement with political information and dialogue can strengthen the critical, ethical, and participatory competencies of digital citizenship. Accordingly:

H3. Political communication positively influences students' digital citizenship.

Political Communication and Students' Civic Participation

Political communication can support civic participation by increasing political knowledge, issue awareness, and opportunities for public deliberation. These processes make collective problems more visible and allow students to rehearse the expression and negotiation of civic positions (Lilleker & Koc-Michalska, 2017; Santos et al., 2025).

Communication may also strengthen internal and external efficacy by showing students how their voices connect with public discussion and collective action. When

communication includes verification and reciprocal dialogue, students are more likely to move from passive exposure toward school governance, community initiatives, and other forms of participation (Hoffmann & Lutz, 2021; Younis et al., 2026).

Evidence among young people links political information seeking, discussion, and expression with civic and political engagement, although effects depend on skills and context (Amin et al., 2025; Dal & Nisbet, 2022; Santos et al., 2025). The present study therefore proposes:

H4. Political communication positively influences students' civic participation.

Digital Citizenship and Students' Civic Participation

Digital citizenship provides critical, ethical, and participatory competencies for civic life. Students who can verify information, recognize manipulation, respect diversity, and communicate responsibly are better prepared to contribute to school and community decisions (Law & Lee, 2022; Shi et al., 2023).

Digital citizenship frameworks treat online participation as civic practice rather than technical use alone. Critical evaluation reduces vulnerability to misinformation, ethical responsibility supports civil dialogue, and local-global awareness connects digital issues with collective concerns. These capacities can convert online interaction into constructive participation (Cleofas, 2025; Vallès-Peris & Domènech, 2024).

Empirical and conceptual studies associate digital citizenship learning opportunities with civic engagement, responsibility, and participation (Bowyer & Kahne, 2020; Cleofas, 2025; Vetrivel et al., 2026). Accordingly:

H5. Digital citizenship positively influences students' civic participation.

The Mediating Role of Digital Citizenship

The mediation argument follows an institutional-opportunity-competence sequence. Educational leadership supplies policies, norms, and protected opportunities for responsible digital learning, while political communication supplies authentic content and interaction. Neither condition guarantees civic action. Digital citizenship translates both into critical judgment, ethical communication, and participatory competence (Law & Lee, 2022; Mirra et al., 2022; Shi et al., 2023).

For educational leadership, the indirect mechanism operates when a democratic digital culture strengthens citizenship competencies that students subsequently apply in school and community participation. For political communication, the mechanism operates when seeking, discussing, expressing, and verifying political information develop competencies that make participation informed and constructive rather than reactive.

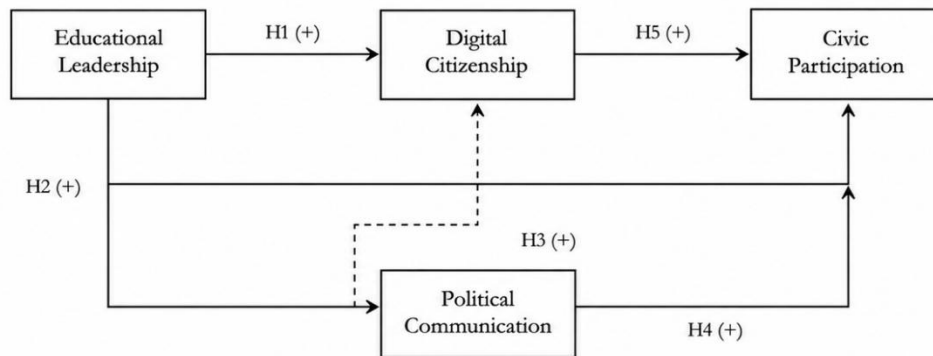
Prior evidence independently links leadership with digital Xu X et al. (2025), political communication with engagement Hoffmann & Lutz, (2021), and digital citizenship with civic participation (Cleofas, 2025). Integrating these relationships supports two mediation hypotheses:

H6. Digital citizenship mediates the relationship between educational leadership and students' civic participation.

H7. Digital citizenship mediates the relationship between political communication and students' civic participation.

Figure 1.

Proposed Conceptual Model of Educational Leadership, Political Communication, Digital Citizenship, and Civic Participation



METHOD

This study employed a quantitative research approach using a cross-sectional survey design to examine the relationships among educational leadership, political communication, digital citizenship, and students' civic participation. A quantitative approach was considered appropriate because the objective of the study was to test theoretically derived hypotheses and examine both direct and indirect relationships among latent constructs through Structural Equation Modeling (SEM). The cross-sectional design enabled the collection of empirical data from students at a single point in time, allowing the proposed conceptual model to be tested efficiently within authentic educational settings.

The proposed research model positions educational leadership and political communication as exogenous constructs, digital citizenship as a mediating construct, and students' civic participation as the endogenous construct. The model was developed based on contemporary theories of educational leadership, political communication, and digital citizenship, and empirically tested using Partial Least Squares Structural Equation Modeling (PLS-SEM).

The target population comprised secondary school students in Indonesia who used digital media for information and communication. The accessible population consisted of students reached through cooperating public and private secondary schools during the June–July 2026 collection period. Because no complete list of all eligible students across participating channels was available, the accessible population could not be enumerated reliably and the study did not use total sampling.

Purposive non-probability sampling was used. Eligible respondents had to be currently enrolled in secondary education, actively use digital media and social networking platforms to obtain information, and provide voluntary consent. For minors, participation also required the applicable school and parental or guardian authorization. After screening

for eligibility and completeness, all 262 valid responses received during the collection period were retained as the analytic sample.

The achieved sample was assessed against the complexity and statistical-power requirements of the PLS-SEM model. The model contains four latent constructs, five direct paths, and two mediated paths. Following [Hair et al. \(2023\)](#), the sample of 262 was considered adequate for estimating the model and applying 5,000-resample bootstrapping. Because recruitment was purposive, adequacy for model estimation should not be interpreted as statistical representativeness of all Indonesian secondary students.

Data were collected using a structured self-administered questionnaire adapted from established instruments and recent literature. The 80 items used a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Table 1 presents the operational domains, item allocation, and sources for each construct.

The collection of data took place between June and July 2026 utilising an online questionnaire circulated using Google Forms. Prior to the principal survey, the questionnaire experienced expert validation from authorities in educational leadership, civic education, political communication, and educational measurement to determine content relevance, clarity of language, and contextual appropriateness.

A pilot examination was then carried out to evaluate the readability of items and their preliminary dependability. Observations collected during the pilot stage were assimilated into the conclusive iteration of the questionnaire before broad data gathering commenced. Involvement was not mandatory, and individuals answered the questionnaire without revealing their identities. The mean time taken for completion spanned roughly 15 to 20 minutes.

Ethical standards were meticulously upheld during the research procedure. Participation was completely optional, and participants were briefed on the study's aims before to filling out the questionnaire. Consent was acquired from all participants before the commencement of data collection. For participants under the legal age of consent, authorisation was secured from educational institutions and parents or legal guardians in compliance with ethical standards. No personally identifiable information was gathered, and all replies were anonymised before analysis. Participants were notified that they might exit the study at any point without facing academic repercussions.

The proposed research framework was analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM) using SmartPLS 4.0. PLS-SEM was selected for its appropriateness in analysing complex models that involve many latent factors, mediation effects, and hierarchical component structures without requiring multivariate normality. Furthermore, PLS-SEM emphasises forecasting and is suitable for studies in education and social sciences that involve latent variables. The examination adhered to the dual-phase methodology suggested by [Hair et al. \(2022\)](#).

The outer model was first examined to assess indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. The reliability of indicators was assessed by outer loadings (≥ 0.708), while internal consistency was quantified using

Cronbach's alpha, rho_A, and Composite reliability (CR). Convergent validity was evaluated using the Average Variance Extracted (AVE), with values exceeding 0.50 indicating acceptable convergence. The assessment of discriminant validity was performed using the Heterotrait–Monotrait Ratio (HTMT) in conjunction with the Fornell–Larcker criterion.

Table 1.

Construct Operationalization, Indicators, Item Allocation, and Sources

Variable	Indicators	Item codes	Items	Sources
Educational Leadership	Digital vision and leadership; democratic communication culture; support for digital citizenship; student participation and protection	EL1–EL5; EL6–EL10; EL11–EL15; EL16–EL20	20	ISTE Standards for Education Leaders; Abu-Tineh et al. (2025) ; Antonopoulou et al. (2025) ; Xu, C et al. (2025)
Political Communication	Political information seeking; political discussion; political expression; information verification	PC1–PC5; PC6–PC10; PC11–PC15; PC16–PC20	20	Hoffmann and Lutz (2021) ; Dal and Nisbet (2022) ; Lilleker and Koc-Michalska (2017)
Digital Citizenship	Critical thinking; digital ethics and responsibility; local-global awareness; civic digital participation	DC1–DC5; DC6–DC10; DC11–DC15; DC16–DC20	20	Law and Lee (2022) ; Shi et al. (2023) ; Vallès-Peris and Domènech (2024)
Civic Participation	Civic attitudes; school participation; community participation; democratic participation	CP1–CP5; CP6–CP10; CP11–CP15; CP16–CP20	20	Bowyer and Kahne (2020) ; Middaugh et al. (2024) ; Younis et al. (2026)

Secondly, the structural model (inner model) was evaluated by examining collinearity (Variance Inflation Factor), path coefficients (β), coefficients of determination (R^2), predictive relevance (Q^2), effect sizes (f^2), and model fit through the Standardised Root Mean Square Residual (SRMR). Hypothesis testing was conducted using bootstrapping with 5,000 resamples, yielding standardised path coefficients, t-values, p-values, and 95% bias-corrected confidence intervals.

To evaluate the mediating role of digital citizenship, indirect effects were computed using bootstrapping methods. Mediation was considered significant when the indirect impact attained statistical significance at $p < 0.05$ and the corresponding confidence interval did not encompass zero. Additionally, the Variance Accounted For (VAF) was calculated to evaluate the degree of mediation.

Given the increasing emphasis on forecasting proficiency in PLS-SEM, PLSpredict was employed to assess out-of-sample predictive performance. Furthermore, Importance–Performance Map Analysis (IPMA) was conducted to identify constructs of notable strategic significance that have relatively poor performance, so providing actionable insights for educational leaders seeking to improve students' civic involvement through digital citizenship.

RESULT AND DISCUSSION

Results

Participant Profile

The analytic sample included 262 eligible secondary school students from cooperating public and private schools. Participants represented multiple grade levels and included students with differing levels of organizational experience and digital-media use. All respondents reported active use of digital media or social networking platforms for information, satisfying the study's principal inclusion criterion. These characteristics provide variation relevant to the four constructs, although the purposive design does not support population-level demographic estimates.

Measurement Model Assessment

The measurement model was analysed to determine indicator reliability, internal consistency reliability, convergent validity, discriminant validity, and multicollinearity prior to examining the structural linkages. In accordance with the guidelines set forth by [Hair et al. \(2022\)](#), the reliability of indicators was initially evaluated through outer loadings, subsequently followed by the analysis of Cronbach's alpha, composite reliability (CR), average variance extracted (AVE), Heterotrait–Monotrait Ratio (HTMT), Fornell–Larcker criterion, and variance inflation factor (VIF).

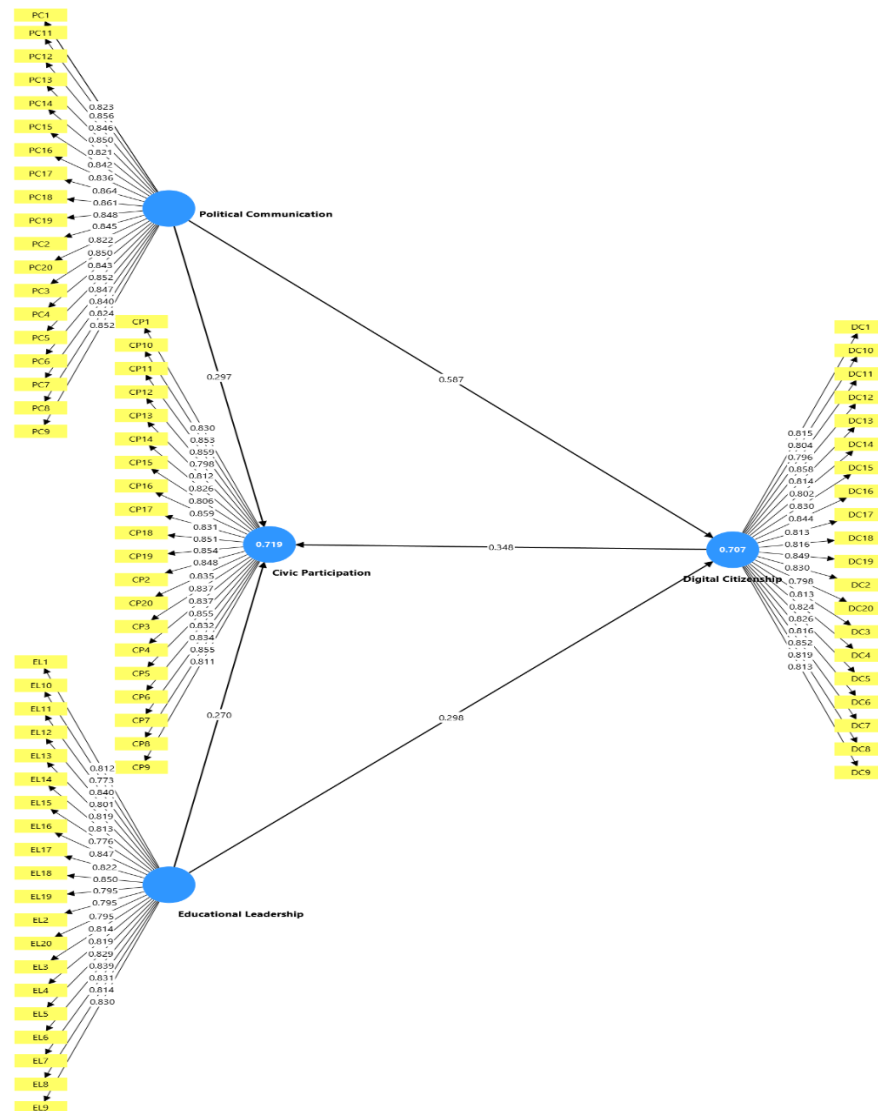
Outer Loading

The findings demonstrate that every measuring indicator displayed acceptable outer loading values. The standardised loadings varied between 0.773 and 0.864, surpassing the suggested minimum of 0.70. The metrics for Political Communication exhibited loadings from 0.821 to 0.864, Educational Leadership varied between 0.773 and 0.850, Digital

Citizenship spanned from 0.796 to 0.858, and Civic Participation ranged from 0.798 to 0.859. These results indicate that each metric effectively embodies its respective latent concept and plays a crucial role in measurement. As a result, no indicator was excluded from subsequent analysis.

Figure 2.

Structural and Measurement Model Summary



Reliability and Convergent Validity

Internal consistency was consistently high across the four constructs. Cronbach's alpha ranged from 0.974 to 0.979, rho_A from 0.974 to 0.979, and composite reliability from 0.976 to 0.980. Political Communication recorded the highest composite reliability (0.980), while Educational Leadership recorded the lowest (0.976), which was still substantially above the acceptance criterion. AVE values ranged from 0.666 for Educational Leadership to 0.713 for Political Communication, indicating that every construct explained more than half of the variance in its indicators.

The loading, reliability, and AVE results jointly support retention of all 80 indicators. The very high reliability coefficients also warrant attention to possible item redundancy; future validation should assess whether a shorter scale can preserve content coverage while reducing respondent burden.

Table 2.

Reliability and Convergent Validity

Construct	Cronbach's Alpha	rho_A	Composite Reliability	AVE
Educational Leadership	0.974	0.974	0.976	0.666
Political Communication	0.979	0.979	0.980	0.713
Digital Citizenship	0.975	0.975	0.977	0.675
Civic Participation	0.977	0.978	0.979	0.700

Table 2 confirms that all constructs met the prespecified internal-consistency and convergent-validity criteria.

Discriminant Validity

Discriminant validity was assessed by the HTMT criterion and the Fornell–Larcker criterion. HTMT values ranged from 0.775 to 0.838 and remained below the conservative threshold of 0.85. The highest coefficient approached but did not cross the criterion, indicating that the most closely related pair remained empirically distinguishable. The Fornell–Larcker assessment led to the same decision because each construct's square root of AVE exceeded its correlations with the other constructs.

The Fornell–Larcker criterion likewise validated sufficient discriminant validity, since the square root of the AVE for each construct surpassed its correlations with other constructs. These results suggest that each latent variable exhibits a higher degree of variance with its respective indicators compared to other variables in the model.

Collinearity Assessment

Indicator VIF values ranged from approximately 2.34 to 3.94 and remained below 5.00. No indicator therefore reached the stated critical level for problematic multicollinearity. Because several values exceeded the stricter benchmark of 3.30, the estimates should nevertheless be interpreted with awareness of moderate shared variance among conceptually related items.

The findings from the evaluation of the measurement model indicate that the suggested tool exhibits acceptable psychometric characteristics. Consequently, an assessment of the structural model was performed to investigate the proposed connections between educational leadership, political communication, digital citizenship, and students' civic engagement.

Structural Model Assessment

After confirming the adequacy of the measurement model, the structural model was evaluated to examine the hypothesized relationships among the latent constructs. The

assessment included the analysis of direct effects, indirect effects, total effects, coefficients of determination (R^2), effect sizes (f^2), predictive relevance (Q^2), and model fit indices.

Direct Effects

All five direct hypotheses were supported. Political Communication showed the strongest relationship with Digital Citizenship ($\beta = 0.587$, $t = 12.533$, $p < 0.001$), almost twice the coefficient for Educational Leadership $\rightarrow$ Digital Citizenship ($\beta = 0.298$). Digital Citizenship was positively related to Civic Participation ($\beta = 0.348$), while Political Communication ($\beta = 0.297$) and Educational Leadership ($\beta = 0.270$) retained direct relationships with Civic Participation. The ordering indicates that students' immediate communicative experience was more strongly associated with their digital citizenship than the more distal institutional environment, although both contributed independently.

Table 3.

Direct Effects

Hypothesis	Path	β	t	p	Decision
H1	Educational Leadership $\rightarrow$ Digital Citizenship	0.298	6.248	<0.001	Supported
H2	Educational Leadership $\rightarrow$ Civic Participation	0.270	4.284	<0.001	Supported
H3	Political Communication $\rightarrow$ Digital Citizenship	0.587	12.533	<0.001	Supported
H4	Political Communication $\rightarrow$ Civic Participation	0.297	4.177	<0.001	Supported
H5	Digital Citizenship $\rightarrow$ Civic Participation	0.348	5.299	<0.001	Supported

Mediation Analysis

Both indirect hypotheses were supported. Educational Leadership was indirectly associated with Civic Participation through Digital Citizenship ($\beta = 0.104$, $t = 3.928$, $p < 0.001$), while the corresponding indirect coefficient for Political Communication was larger ($\beta = 0.204$, $t = 5.209$, $p < 0.001$). Because the direct paths from both predictors to Civic Participation remained significant and had the same positive direction as their indirect paths, Digital Citizenship represents complementary partial mediation (table 4). The larger political-communication pathway is consistent with its stronger direct association with the mediator.

Coefficient of Determination and Effect Size

The model explained 70.7% of the variance in Digital Citizenship and 71.9% of the variance in Civic Participation. Thus, the combined predictors accounted for a substantial share of both endogenous constructs, with slightly greater explanatory power for the final civic-participation outcome.

Political Communication made the largest contribution to Digital Citizenship ($f^2 = 0.458$). The reported effects of Digital Citizenship ($f^2 = 0.126$) and Educational Leadership ($f^2 = 0.119$) were smaller, while the direct contributions of Educational Leadership ($f^2 = 0.091$) and Political Communication ($f^2 = 0.084$) to Civic Participation were modest. This pattern reinforces the importance of the mediated route: communication contributes strongly to the mediator, which then provides an additional pathway to participation.

Table 4.

Mediation Analysis

Hypothesis	Indirect Path	β	t	p	Decision
H6	Educational Leadership → Digital Citizenship → Civic Participation	0.104	3.928	<0.001	Supported
H7	Political Communication → Digital Citizenship → Civic Participation	0.204	5.209	<0.001	Supported

Predictive Relevance and Model Fit

Both endogenous constructs had positive Q^2 values, 0.701 for Digital Citizenship and 0.675 for Civic Participation, indicating predictive relevance under the reported procedure. The SRMR of 0.029 was below 0.08, while the NFI of 0.849 indicated acceptable rather than perfect approximate fit. Taken together, these indices support the model's explanatory and predictive adequacy without implying that alternative models have been excluded.

Overall, the structural model provides robust empirical support for the proposed theoretical framework. All hypothesized relationships were statistically significant, the mediation effects were confirmed, and the model demonstrated substantial explanatory and predictive capabilities, supporting the suitability of the proposed model for explaining students' civic participation in the digital political era.

Discussion

The findings show that students' civic participation is associated with both the institutional conditions created by educational leadership and the political communication they experience in digital spaces. All five direct paths and both indirect paths were significant. The results therefore support an integrated account in which leadership establishes norms and opportunities, communication provides repeated civic encounters, and digital citizenship supplies the competencies that help students convert these experiences into participation.

Educational Leadership was positively associated with Digital Citizenship ($\beta = 0.298$) and Civic Participation ($\beta = 0.270$). These findings are consistent with digital-leadership research showing that vision, policy, professional support, and school culture shape responsible technology practices (Abu-Tineh et al., 2025; Antonopoulou et al., 2025; Xu, C., et al., 2025). A plausible mechanism is that leaders legitimize student voice and embed expectations for verification, ethical communication, and responsible technology use across school routines. The coefficients were meaningful but smaller than the Political

Communication → Digital Citizenship path, which suggests that leadership operates as a distal institutional condition rather than students' most immediate source of digital civic learning.

Political Communication had the strongest direct association in the model with Digital Citizenship ($\beta = 0.587$). Communication activities repeatedly require students to seek information, compare claims, encounter disagreement, express positions, and decide whether content is credible or appropriate to share. These are the same practices captured by critical thinking, ethical responsibility, awareness, and civic digital participation. The close alignment between the experience and the competence helps explain why this coefficient exceeded Educational Leadership → Digital Citizenship. Leadership creates enabling conditions, whereas political communication gives students direct and frequent opportunities to enact digital citizenship. This interpretation accords with evidence linking online political communication to efficacy, critical engagement, and participation (Dal & Nisbet, 2022; Hoffmann & Lutz, 2021; Santos et al., 2025).

Digital Citizenship was positively associated with Civic Participation ($\beta = 0.348$), the strongest direct predictor of the final outcome. Students who can verify information, communicate respectfully, recognize local and global implications, and participate ethically online are better equipped to deliberate and act in school and community settings. This finding supports accounts of digital citizenship as civic competence rather than technical proficiency alone (Law & Lee, 2022; Shi et al., 2023; Vallès-Peris & Domènech, 2024). It also explains why communication alone is insufficient: information exposure becomes constructive participation when students possess the judgment and ethical orientation needed to use it responsibly.

The mediation results clarify how the predictors operate. Digital Citizenship partially mediated Educational Leadership → Civic Participation ($\beta = 0.104$) and Political Communication → Civic Participation ($\beta = 0.204$). Leadership and communication retained direct coefficients, so neither pathway depends entirely on the mediator. Nevertheless, the larger political-communication indirect effect shows that part of its civic relevance lies in developing digital competencies. This extends earlier studies that considered leadership, communication, and citizenship separately by demonstrating two complementary routes to participation within one secondary-school model.

Theoretically, the study extends educational leadership from organizational and instructional outcomes toward democratic capacity building. It also specifies a competence mechanism in political communication: interaction with political content becomes educationally productive when it strengthens digital citizenship. Practically, school leaders should establish protocols for information verification, respectful political discussion, privacy, and student voice; teachers should use evidence-based digital debate, collaborative inquiry, and project-based civic learning; and student organizations should receive structured opportunities to address authentic school or community issues. The cross-sectional, purposive, self-report design prevents causal and population-level claims. Future longitudinal, experimental, multi-informant, and multisite studies should test

temporal ordering, behavioral outcomes, measurement redundancy, and subgroup differences.

CONCLUSION

Educational leadership, political communication, and digital citizenship jointly explained substantial variation in students' civic participation. Political communication showed the strongest association with digital citizenship, indicating that active encounters with political information and discussion provide a proximal setting for practicing critical evaluation, ethical expression, and responsible participation. Digital citizenship was also the strongest direct predictor of civic participation and partially mediated both predictor relationships. The study therefore identifies digital citizenship as a competence-based bridge between institutional leadership, communication experience, and civic action. Schools should translate this finding into leadership policy, curriculum, and student activities that combine information verification, civil dialogue, digital ethics, and authentic civic inquiry. Because the evidence is cross-sectional and based on purposive self-reports, future research should test the model longitudinally with probability samples, behavioral indicators, and multiple informants across diverse educational settings.

DECLARATIONS

Author Contribution

Hadian, V. A., Conceptualization, Investigation, Data Curation, Writing – Original Draft, Visualization, and Project Administration. **Kurniawaty, I.**, Methodology, Formal Analysis, Software, Validation, Writing – Review & Editing. **Tanshzil, S. W.**, Supervision, Validation, Resources, Writing – Review & Editing. All authors have read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

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Conflict of Interest

The authors declare no conflict of interest.

Declaration of AI Use

Generative AI (ChatGPT, OpenAI) was used under the authors' supervision to improve language clarity, enhance academic writing quality, and assist with manuscript editing. All scientific content, study design, data collection, data analysis, interpretation of findings, and final manuscript revisions were performed and verified by the authors. The authors take full responsibility for the accuracy and integrity of the manuscript.

Additional Information

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Data Availability Statement: The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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