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Digital Citizenship Education for Good Governance: A Character-Based Approach Rooted in Local Wisdom

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ABSTRACT

The rapid digital revolution has reshaped civic life and governance, demanding transparency, participation, and ethical responsibility. Within this context, digital citizenship education (DCE) emerges as a crucial pedagogical framework for cultivating citizens who are technologically proficient, morally grounded, and culturally responsive. This study aims to construct a conceptual model of character-based digital citizenship education rooted in Indonesian local wisdom as a foundation for good governance. Employing a qualitative approach through a critical literature review, academic sources were systematically selected from Scopus, WoS, and other reputable databases using inclusion criteria that emphasized relevance to DCE, character education, and local cultural values. Thematic analysis was conducted to identify key patterns and synthesize integrative perspectives. The findings reveal that integrating global principles of digital ethics, civic participation, and digital literacy with local values such as mutual cooperation, deliberation for consensus, and cultural politeness strengthens anti-corruption culture, civic responsibility, and democratic resilience. Furthermore, this character-based and culturally rooted DCE framework advances both theory and practice by linking digital transformation with governance reform in developing contexts. The study contributes to curriculum innovation, education policy design, and the achievement of SDGs 4.7 and 16, positioning DCE not merely as technical training but as a transformative process for building inclusive and ethical digital societies.

Keywords: Digital Citizenship; Good Governance; Character; Digital Ethics; Local Wisdom

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1. Introduction

In the contemporary digital era, transformations in civic engagement and governance have grown exponentially, marked by the penetration of digital technologies that reconstruct the communication ecosystem, public participation, and patterns of relations between citizens and state institutions[1, 2]. Digital platforms are no longer just a medium of information, but have shifted their function to become an arena of public deliberation that redefines participatory democracy, transparency, and public service innovation[3]. However, this progress did not come without consequences. Inequality of digital access, the spread of disinformation, and ethical crises in online space indicate the urgency of strengthening digital literacy accompanied by reflective civic responsibility[4].

Within this framework, digital citizenship education has gained strategic relevance as a new paradigm in civic education and social governance reform. It was originally formulated to emphasize the safe, ethical, and responsible use of technology[5]. Digital Citizenship Education (DCE) has now evolved into an interdisciplinary arena that includes digital political awareness, the rights and obligations of online citizens, and the formation of democratic character in the digital ecosystem[6]. Recent literature underlines that DCE should not stop at the transmission of technical skills, but should include ethical, social, and cultural dimensions capable of shaping reflective, inclusive, and transformative citizens[7]. Although DCE has been adopted in a variety of global contexts, its approach is still dominated by Western epistemology that often ignores the diversity of local values and traditional ethical systems. This raises crucial questions about the relevance and effectiveness of DCE in Global South countries, including Indonesia, which have a collective value system based on local wisdom such as mutual cooperation, deliberation, and social politeness[8]. A universal and culturally neutral approach risks uprooting DCE from the philosophical roots of local communities, thereby reducing its potential in strengthening the foundations of democracy based on character and cultural identity.

Indonesia offers a critical context to test such integration. With more than 220 million internet users, Indonesia is one of the largest digital ecosystems in the world[9–11]. However, this development is accompanied by serious challenges such as digital polarization, misuse of social media, and a lack of digital ethics in online interactions. Although governments have launched various initiatives to improve digital literacy, formal education curricula have not consistently integrated ethical citizenship values and cultural awareness into digital narratives[10]. In this context, character-based educational approaches rooted in local values are becoming increasingly important. Contemporary moral education theory emphasizes the importance of establishing civic virtues such as integrity, responsibility, and social justice[11]. When aligned with local cultural norms, this approach can be a bridge between global digital competence and contextual social ethics. A study by Kim and Choi[12] supports a transformative DCE model that places learners as active agents in building an ethical and inclusive digital society. UNESCO[13] also calls for the development of a DCE curriculum that is contextual, values-based, and sensitive to local challenges faced by developing countries.

Although the discourse on digital citizenship education (DCE) has expanded significantly in the last decade, especially in the context of digital education and literacy, the exploration of the strategic relationship between DCE and the principles of good governance is still very limited, especially in developing countries. In fact, in the era of digital transformation that continues to accelerate, the ability of citizens to understand, manage, and utilize technology responsibly is an essential condition for the formation of good governance. DCE not only serves as a tool to expand access to digital information, but also as a transformative instrument in shaping ethically conscious, critical, and participatory civic identities in the digital space[14]. Unfortunately, the dominance of the technocratic approach in the implementation of digital government technology is still not balanced by value-based digital citizenship capacity building. It is in this context that digital citizenship education becomes relevant as a normative and praxis force that unites the need for digital literacy with civic ethics and deliberative participation[15].

Good governance principles such as transparency, accountability, public participation, and social justice cannot be realized sustainably without a citizen's base that has digital competence and solid moral integrity. The World Bank[16] explicitly emphasizes that the effectiveness of governance is largely determined by the quality of interaction between governments and communities, especially in terms of informa-

tion disclosure and technology-based participation. Therefore, DCE should be seen as a normative foundation that enables citizens not only to be users of technology, but also to be active watchers, critics, and partners in the public policy process. Within the framework of developing countries, where challenges such as limited digital access, social inequality, and low institutional capacity remain structural barriers, DCE has the strategic potential to fill the gap between digital innovation and democratization of governance [17–20]. Thus, the relationship between DCE and good governance is not incidental, but causal and integral; a relationship that should be systematically designed within the framework of public policy and visionary educational curriculum design. It can be classified in the form of a chart below (**Figure 1**):

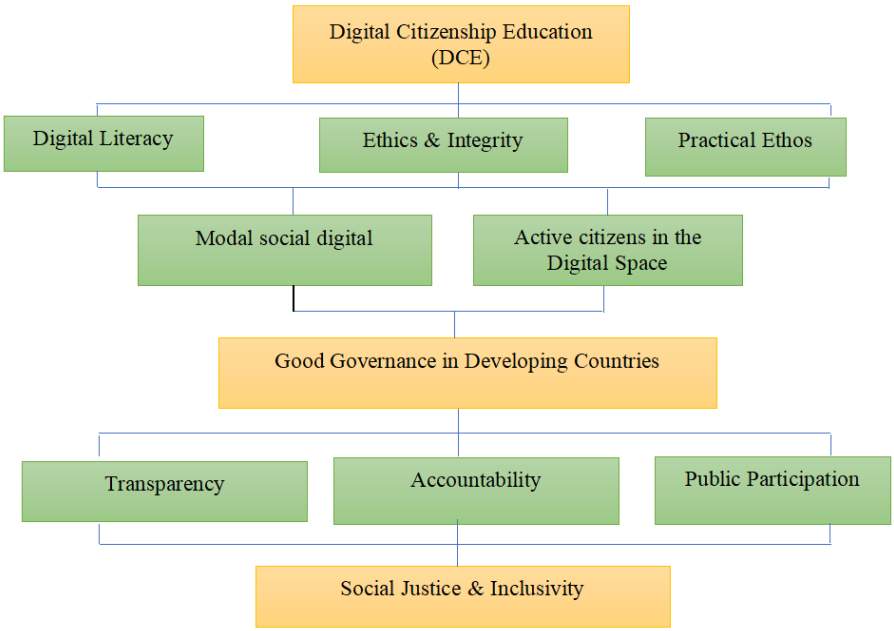


Figure 1. Conceptual chart: DCE as a Foundation of Good Governance.

Source: Misirli and Akbulut [18].

Based on this picture, the increasing urgency of Digital Citizenship Education (DCE) in the past decade has not only been triggered by the global digital revolution, but also by the demands for the transformation of the governance system towards a more participatory, transparent, and equitable model. In the context of developing countries, where socio-political complexity is often accompanied by the limitations of digital democracy infrastructure, DCE plays a strategic role as a catalyst in shaping citizens who are not only technologically literate, but also have strong moral integrity and participatory awareness [19].

DCE is an educational instrument that not only teaches digital skills, but also promotes the principles of responsible citizenship in the digital ecosystem. Within this framework, there are three main elements that are the foundations: digital literacy, integrity-based digital ethics, and participatory ethos. Digital literacy is a basic prerequisite that allows individuals to understand, access, and use technology effectively in the digital socio-political space. Without adequate digital literacy, citizens will be trapped in information inequality which actually weakens digital democracy. On the other hand, digital ethics and integrity emphasize the importance of forming citizens' moral awareness to be honest, responsible, and fair in the use of technology and online interactions. This is becoming increasingly crucial given the rise of disinformation, hate speech, and algorithmic manipulation in the digital public space [20].

A participatory ethos is a transformative dimension of DCE that encourages citizens not only as passive users, but as active actors in public decision-making through digital channels. With strong literacy and ethical capital, DCE forms citizens who are able to participate critically in online forums, voice aspirations, and exercise social control over distorted power practices. These three elements, literacy,

ethics, and participation synergistically form digital social capital that is the foundation of a healthy digital citizenship ecosystem. Citizens who have this capital not only understand their rights and obligations, but also have the moral courage to be actively involved in the governance process.

From a governance perspective, the presence of active and integrity digital citizens is an important capital in realizing the principles of good governance. Torney-Purta et al. [21] state that good governance can only be realized when there is accountability, transparency, public participation, and social justice in the decision-making process and policy implementation. In this context, the contribution of DCE becomes particularly relevant. Digital citizens educated through DCE have the capacity to demand transparency through online monitoring of public policies, voice opinions through democratic digital channels, and organize technology-based civic movements. In fact, in countries with limited levels of civil liberties, digital spaces are often the only deliberative spaces that allow political expression to occur [22].

Furthermore, citizen involvement in governance not only strengthens policy legitimacy, but also increases the effectiveness of public services. The OECD notes that the digital transformation of governments in developing countries often fails not because of the absence of technology, but because of the low participation and digital literacy of citizens. Therefore, investment in DCE should be seen as a long-term strategy to shape an inclusive and equitable governance architecture. DCE contributes directly to the principles of social justice, as it opens up wider access for marginalized groups to be involved in the digital democratic process [23].

Thus, the conceptual chart developed in this study emphasizes that Digital Citizenship Education is not just a complement to education policies or digital transformation, but is an epistemological and praxis prerequisite for realizing good governance in developing countries. The interconnection between digital literacy, moral integrity, and participatory ethos formed by DCE is the foundation for building digital citizens who are able to support a transparent, accountable, participatory, and socially just government.

In the context of a digital society, the relationship between citizens and the state is no longer one-way, but has become dialogical, dynamic, and based on trustworthiness in digital governance. Therefore, strengthening the capacity of character-based digital citizenship is not only a normative choice, but a structural necessity for the sustainability of digital democracy [24]. Within this framework, the DCE approach that instills the dimensions of character, morality, and cultural ethics is the key to fostering a just and civilized digital ecosystem. Recent research shows that strengthening ethical values such as honesty, responsibility, and social care in digital citizenship curricula can shape more reflective, tolerant, and social justice-oriented citizen behaviors [25, 26]. When citizens not only demand transparency from government institutions, but also practice accountability in daily digital activities such as information verification, constructive participation, and anti-hoaxes, good governance is not only created from top-down, but strengthened from the bottom-up. The synergy between digital ethics and local values is an important foundation in shaping digital integrity-based governance and social trust [27].

Therefore, this study aims to bridge the conceptual and practical gaps in the DCE literature by proposing a digital citizenship education framework based on character and local wisdom, with a special context on the pluralistic and democratic Indonesian education system. This approach is in line with the goals of the Sustainable Development Goals, in particular SDG 4.7 which emphasizes education that upholds global and local values, and SDG 16 which emphasizes the importance of fair and participatory institutions. Through a qualitative approach based on critical literature review, this study analyzes how traditional Indonesian values such as mutual cooperation, deliberation, and politeness can be integrated into digital education as the foundation for the formation of ethical and democratic digital citizens. These findings are expected to broaden the academic horizons in the study of DCE, while offering practical contributions to civic curriculum innovation, public policy reform, and strengthening inclusive and contextual digital governance [28].

2. Materials and Methods

This study applied a qualitative research design using a critical literature review approach. The choice of this method was based on the research objective, namely to develop a conceptual framework for character-based digital citizenship education (DCE) rooted in local wisdom to support good governance. A critical review is appropriate for exploring cross-disciplinary paradigms and synthesizing theoretical contribu-

tions in civic education, e-governance, and cultural studies [29].

2.1. Data Sources and Search Strategy

Secondary data were collected from Scopus- and WoS-indexed journals, reputable academic publishers (ScienceDirect, SpringerLink, Taylor & Francis), and policy documents from UNESCO, UNDP, OECD, and the World Bank. National academic publications relevant to the Indonesian context were also included. Literature searches covered the period 2019–2025 using keywords such as *digital citizenship education*, *good governance*, *character education*, and *local wisdom*.

2.2. Inclusion and Exclusion Criteria

The inclusion criteria were: (1) explicit discussion of DCE in relation to governance or local culture; (2) articulation of ethical or cultural values in digital education; and (3) peer-reviewed, high-quality sources. Exclusion criteria were opinion pieces, non-peer-reviewed articles, and studies with weak methodological grounding.

2.3. Selection and Organization

The selection process was carried out in three stages: title and abstract screening, full-text review, and critical appraisal of methodological rigor. Reference management tools (Zotero and Mendeley) were used for organizing sources and ensuring accuracy.

2.4. Data Analysis

A thematic analysis approach was employed to identify key patterns and conceptual gaps [30]. The process involved: (1) open coding of extracted data, (2) categorization into themes such as digital literacy, digital ethics, and participatory ethos, (3) critical interpretation of relationships among themes, and (4) synthesis into an integrative conceptual model.

2.5. Research Ethics

As a literature-based study, no primary data were collected and ethical approval was not required. The research process followed academic integrity principles, with respect for intellectual property, transparency, and avoidance of bias or plagiarism [31].

3. Results

The transformation of digital citizenship in the context of good governance has undergone a paradigm expansion through multidisciplinary studies that combine technology, ethics, culture, and character education. The study of Choi et al. [32] affirms the importance of a shift from technocratic digital citizenship to a transformative model rooted in values. They revealed that citizen participation in the digital space must be guarded by critical awareness, moral integrity, and sensitivity to socio-political dynamics that take place in the local context. This transformative DCE model places value as the key axis in building connections between individuals and digital governance systems. Furthermore, Jones et al. [33], through a survey approach to the digital engagement of young people in developed countries, it is shown that digital participation without an ethical basis risks reinforcing polarization and misinformation. They emphasized the need for "ethical scaffolding" in participatory platform design, including in citizen feedback mechanisms for public services. This emphasizes that digital literacy is not enough if it is not accompanied by the internalization of ethical values, social responsibility, and collective awareness. These findings are particularly relevant to be applied in the Indonesian context, where the digital ecosystem is growing rapidly without adequate ethical controls.

In a local context, the study of Marines et al. [34] underscores the importance of linking character education with digital values in the Indonesian context. Through case studies in schools based on local wisdom, he found that values such as mutual cooperation, responsibility, and politeness can be transformed into a digital ethical framework. When students were asked to reflect on these values in social media use, they showed improvements in digital empathy, self-control, and resilience to online provocation. These findings reinforce the importance of pedagogy that is not only cognitive, but also affective and contextual. On the policy side, the UNESCO report [35] provides a global framework for the integration of digital citizenship that is inclusive and culturally responsive. In this case, it is in line with local Indonesian wisdom which can be presented in the form of the **Table 1** below:

Table 1. The value of local wisdom in Indonesia.

No.	The Value of Local Wisdom	Manifestations in Character-Based DCE	Relevance to Good Governance	Local Cultural Resources
1.	Mutual Cooperation	Collaborative and mutually helpful learning in the digital space	Encourage public participation and social solidarity	Culture of Java, Java, and Minang
2.	Deliberation for Consensus	Online discussions based on deliberative ethics	Increase participation and democratic decision-making	The basic values of Pancasila and local traditions of the archipelago
3.	*Tepa Selira* (Tolerance)	Digital literacy education based on empathy and difference	Supporting social justice and inclusivity	Javanese and Eastern Indonesian Culture
4.	Local Customs and Ethics	Digital code of conduct according to cultural norms	Improving moral integrity and citizen responsibility	Customary systems in Aceh, Bali, Papua
5.	Honesty and Trustworthiness	Honesty-based digital character education	Driving accountability in the digital public space	The noble values of Malay, Bugis, Betawi

Source: Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia [36].

Various global and national studies and reports have highlighted the importance of integrating local wisdom values in digital citizenship education. Marini et al. [37] through their studies in local culture-based schools in Indonesia affirmed that values such as mutual cooperation, responsibility, and politeness can be effectively contextualized into the practice of digital citizenship education (DCE), especially in shaping students' digital empathy and ethical resilience. UNESCO's report [38] further reinforces this urgency by emphasizing that DCE should be culturally and contextually responsive, not value-neutral or homogeneous in pedagogical approaches. Within the scope of national policy, the official report of the Ministry of Education and Culture acknowledges that digital education in Indonesia is still dominated by technical aspects, while the ethical and character dimensions have not been comprehensively integrated in the curriculum. At the international level, Schellinger et al. [39] emphasizes that inclusive digital education must integrate the values of democracy, accountability, and community-based participation as the foundation of good digital governance. In line with that, Selin et al. [40] formulated that good governance in the digital era requires the involvement of citizens who are not only technically digitally literate, but also have moral and ethical awareness based on sustainable local and cultural values.

The document emphasizes that digital citizenship education should not be homogeneous or culturally neutral. Instead, DCE must be able to respond to the diversity of local values while upholding the principles of democracy and human rights. This opens up space for a more participatory and contextual approach in the design of digital citizenship curricula in developing countries. In line with that, the Ministry of Education and Culture's report [41] acknowledges that despite the rapid development of digital infrastructure in Indonesia, formal education on digital ethics and citizenship is still fragmentary. An approach that focuses too much on the technical aspect leads to the marginalization of the value and moral dimensions. This is reflected in the lack of integration of character education in the ICT curriculum or digital literacy taught in schools. These findings show the urgent need to redesign the curriculum to be able to balance digital proficiency and ethical awareness.

Pangrazio [42] in his critical discourse analysis, highlight the importance of critical literacy in digital education. He assert that digital citizens must have the ability to critique power structures, hegemonic narratives, and algorithms that mediate information. In the context of public governance, these capabilities are essential to ensure accountability and transparency. This study confirms that digital citizenship is not just about 'using' technology, but also about 'understanding and questioning' how technology shapes public life. Meanwhile, Purwatiningsih et al. [43], in their ethnographic study, found that the digital ethics of local Indonesian people are greatly influenced by customary norms, religions, and communal customs. They pointed out that digital citizenship discourse that overly adopts Western liberal values often fails to be implemented because it is not in accordance with society's social practices. Therefore, they recommends that

digital education be developed through a dialogical approach with local communities, to internalize digital values in an authentic and meaningful way. Data from APJII shows that Indonesia's internet user population has reached more than 200 million people[9]. However, this increase in access is not necessarily accompanied by an improvement in the quality of digital participation. In fact, it was found that along with the increase in the use of digital platforms, cases of cyberbullying, hate speech, and the spread of hoaxes have also increased significantly. This fact emphasizes the urgency of strengthening character values as an integral part of digital education, in order to maintain a healthy and democratic digital ecosystem.

Berkowitz and Lickona[44], through their comprehensive literature review, emphasized that effective character education must be deliberative, integrative, and continuous. These foundational principles have gained increasing urgency in the current digital era, which is marked by ethical ambiguities, the accelerated circulation of information, and boundless virtual interactions. Character education can no longer be perceived as a peripheral element of schooling; rather, it must serve as the core axis around which 21st-century curricula are designed. Within this evolving context, the cultivation of responsible digital citizens demands more than mere technological proficiency it necessitates the internalization of moral integrity and ethical discernment. This underscores the importance of a holistic educational paradigm aimed at nurturing the entirety of the learner's personality, not merely their instrumental or technical competencies in navigating digital spaces.

Within this conceptual framework, values such as honesty, tolerance, and justice should not be treated as abstract ideals, but as lived principles embodied through consistent and contextually grounded pedagogical practices. Hafnan[45] asserts that the success of character education in the digital age depends fundamentally on the coherence among the values being taught, the pedagogical strategies employed, and the exemplary conduct demonstrated by educational institutions. The true strength of character education lies in how these values are internalized through habituation, moral dialogue, and critical reflection within the everyday dynamics of digital learning. Consequently, educational institutions must function as ethical ecosystems, modeling integrity and consistency across all forms of interaction whether online or offline.

Furthermore, a transformative study conducted by Tadlaoui-Brahmi et al.[46] marks a new chapter in the formulation of a digital citizenship education model that does not simply passively adopt global norms, but actively intersects local values as its ethical foundation. With a holistic mixed-methods approach, their findings confirm that the integration of cultural values and locality within the framework of digital education is capable of creating a learning space that is not only cognitive, but also affective and reflective. Epistemologically, this model shifts the paradigm of digital education from technocratic to humanistic, where students are positioned as autonomous and contextual moral subjects, not just technology users.

Moreover, when students are invited to deconstruct digital moral dilemmas such as cyber privacy, hate speech, and algorithmic manipulation in the context of their own community values, there is a significant increase in critical reflection capacity and ethical awareness. This process proves that local values such as mutual cooperation, deliberation, and shame (tepa salira), if pedagogically articulated into digital discourse, can become a new pillar in fostering moral sensitivity to fair and responsible digital practices. In this context, local wisdom does not only function as a cultural ornament, but also as an alternative epistemology in building digital governance based on communitarian ethics[47].

The implications of these findings are strategic and multidimensional. Character- and locality-based digital citizenship education is not only an alternative approach, but should be positioned as mainstream within the framework of 21st-century education reform. In a digital democracy landscape that is prone to social fragmentation and ethical crises, this strategy has the potential to strengthen the resilience of the government system from the grassroots. In other words, building digital citizens with character through local values not only creates technologically capable individuals, but also moral agents who are able to maintain the principles of governance that are ethical, transparent, participatory, and inclusive[48].

4. Discussion

The findings of this study reaffirm the critical urgency of advancing character-based digital citizenship education

grounded in local wisdom as an ethical compass for navigating the complexities of contemporary digital governance. This perspective responds to the escalating challenges of the digital disruption era, wherein meaningful citizen participation is shaped not only by technological competence, but also by moral integrity, cultural rootedness, and collective civic awareness. As articulated by Jansen [49], digital citizenship education should transcend technical instruction and encompass ethical, participatory, and culturally embedded dimensions. The present study extends this scholarly discourse by integrating moral–spiritual frameworks with community-driven social transformation, highlighting the necessity of an approach that humanizes digital engagement.

The contextual paradigm of digital citizenship education examined in this study aligns with the arguments of Pangrazio and Sefton-Green [50], who emphasize that deliberative and critical pedagogies enable learners to recognize their positioning within complex digital power relations. In the Indonesian context, civic learning infused with values such as gotong royong (mutual cooperation), deliberation, and cultural politeness becomes increasingly relevant to counterbalance global digital norms that tend to privilege individualistic and technocratic orientations. By embedding local wisdom into digital learning ecosystems, citizens are shaped not merely as proficient digital users, but as ethical guardians of communal values in cyberspace. This finding also resonates with Lozano-Díaz and Fernández-Prados [51], who caution that digital education detached from local cultural contexts risks alienating learners and creating psychological distance from their immediate social environment. Thus, a culturally responsive digital citizenship framework is indispensable for fostering transformative education, moving beyond knowledge transmission to cultivating reflective, value-driven digital engagement.

The significance of character education within digital contexts is further reinforced by Fitroh et al. [52], who argue that universal virtues such as honesty, responsibility, and tolerance must be contextualized and operationalized in daily digital interactions. In Indonesia, these values are closely intertwined with societal norms that prioritize social harmony and solidarity as intrinsic elements of civic identity. This insight offers new directions for constructing digital curricula that not only comply with global standards but concurrently fortify national character and cultural identity.

Moreover, the study reveals that students exposed to digital learning integrated with ethical and reflective dialogues demonstrate notable improvements in critical thinking and empathetic capacities. This supports the findings of Choi et al. [32], who observed that students engaged in contextual discussions of digital moral dilemmas attain a deeper understanding of their responsibilities in online environments. Such convergence of evidence underscores the potential of character-based digital citizenship education as a strategic instrument for fostering ethical, inclusive, and community-oriented digital governance.

Nevertheless, challenges remain in the broader implementation of this model, particularly in education systems in developing countries that are still predominantly centralized and technocratic. As highlighted by Masdul [53], many digital education initiatives fail to achieve their intended impact due to the limited involvement of local communities in curriculum co-design. Therefore, a collaborative, multi-stakeholder approach-engaging teachers, families, community leaders, and policymakers is essential to ensure that local values are not merely symbolic additions but are substantively embedded within digital education practices. Only through such an inclusive approach can digital citizenship education become ethically grounded, culturally resonant, and socially transformative.

Although it has transformative potential, the implementation of character-based digital citizenship education (DCE) rooted in local wisdom faces significant structural challenges. One of the key tensions lies in the conflict between centralized educational policies and the need for localized cultural values. In many developing countries, including Indonesia, curriculum design remains centralized and technocratic, thereby limiting opportunities for communities to participate in shaping educational priorities. This often results in a uniform curriculum model that is insufficiently responsive to cultural diversity. Manggalasari et al. [54] emphasize that the transition from centralized control to co-creation in digital education governance requires a paradigm shift in policymaking to ensure that local community voices are genuinely accommodated.

To address this tension, collaborative mechanisms are necessary to facilitate the integration of local values into digital education. Several mechanisms may be employed,

including: (1) establishing multi-stakeholder curriculum councils at the regional level involving teachers, parents, community leaders, and policymakers; (2) strengthening school–community partnerships to co design digital learning modules aligned with local wisdom; and (3) implementing participatory teacher training programs so that educators not only master digital literacy but are also capable of contextualizing it with cultural values. This collaborative model is consistent with the findings of Hardianto and Wati [24], who demonstrated the effectiveness of participatory learning designs in increasing the relevance of digital content to students' social contexts.

Nevertheless, the implementation of such ideal collaborative models can be resource-intensive, both financially and institutionally. Therefore, adaptive scalability strategies are needed to maintain cultural sensitivity without overburdening the educational system. One strategy is to leverage existing social institutions such as religious organizations, youth associations, and cultural centers as cost-effective platforms for integrating ethical digital literacy. In addition, the use of open-source software and peer learning models can serve as low-cost alternatives to expand the reach of digital education. Arbarini et al. [55] demonstrated that community-based participatory learning models significantly improved functional literacy, even in low-resource settings. This finding underscores that participatory, community-driven pedagogical innovation is not only theoretically sound but also practically applicable in the educational contexts of developing countries.

Overall, the findings of this study underscore that the integration of local values into digital citizenship education is not only pedagogically relevant but also strategically significant for national education policy. Governments are encouraged to design more inclusive and flexible curriculum frameworks that allow the systemic incorporation of local wisdom into digital learning practices. This aligns with Chandir and Gorur's report [56], which emphasizes that digital education must be context-responsive and rooted in socio-cultural realities to nurture equitable and globally competent citizens.

At the conceptual level, this study contributes to the enrichment of citizenship education discourse by advancing the idea of "digital-local citizenship" a perspective that highlights the interconnectedness of digital competencies, character formation, and local cultural awareness. This concept serves as a critical corrective to global education narratives that have been overly focused on standardization and technological proficiency, while neglecting the moral, social, and cultural dimensions that define meaningful citizenship. Thus, the present study not only enriches theoretical scholarship but also offers a reflective framework for reorienting civic education in the digital era.

Theoretically, the findings pave the way for advanced research agendas that move beyond digital literacy towards the development of participatory, context-sensitive, and community-based pedagogical practices. A digital citizenship pedagogical model grounded in local communities needs to be constructed through sustained collaboration among schools, families, and digital community groups embedded within local cultures. As highlighted by Saripudin et al. [57], meaningful digital learning requires fostering critical awareness of the social dynamics and contextual conditions in which technologies are used, ultimately shaping data-conscious, ethically attuned, and socially responsible digital citizens. In this regard, embedding local wisdom within pedagogical practices should not be viewed as decorative, but as a structural and epistemic foundation.

Moreover, there is a need for longitudinal studies that examine the evolving interplay among customary norms, local social structures, and citizens' digital practices across different regions of Indonesia. Such research can generate a deeper, temporally informed understanding of how local wisdom is mediated within digital environments, and how living social norms may serve as mechanisms of ethical control within digital spaces. Consistent with the insights of Pike et al. [58], sustainable character education is that which adapts to contextual shifts without abandoning universal ethical principles. Therefore, integrating indigenous norms with the principles of global digital citizenship requires a cross-disciplinary methodological approach involving education, digital sociology, cultural anthropology, and policy studies.

The implications of this discourse further suggest that digital citizenship education that prioritizes technical mastery alone risks producing digitally skilled individuals who lack ethical sensitivity. This reinforces Zheng et al 's warning [59] that the digitization of value-based education may exacerbate moral and social disparities. In the context of sustainable development, an educational approach that incorporates char-

acter and local values is no longer a complementary element but a central pillar in building inclusive, democratic, and accountable digital governance.

In sum, the contribution of this study is twofold: theoretically, it advances a new conceptual pathway for developing character-based, culturally grounded digital citizenship education; and strategically, it supports the achievement of the Sustainable Development Goals particularly Target 4.7 on transformative education and Target 16 on strengthening inclusive, transparent, and accountable institutions. Ultimately, the integration of local wisdom into digital citizenship is not merely a pedagogical preference but a moral imperative for cultivating a generation of Indonesian digital citizens who are intelligent, ethical, and globally competitive.

5. Conclusions

This study concludes that character-based digital citizenship education, when rooted in local wisdom, serves as an important foundation for the realization of inclusive, ethical, and participatory digital governance. The integration of character education and customary values not only improves civic competence in the digital era but also builds resilience to ethical degradation in the virtual space. Rather than simply transferring digital skills, this educational approach fosters a moral compass and civic responsibility among learners a key component to fostering a democratic digital society. As highlighted by Pangrazio and Sefton-Green[60], digital citizenship that means demanding more than just technological fluency; This requires ethical engagement and critical awareness in a digital context.

These findings suggest that pedagogical frameworks that emphasize local cultural contexts significantly contribute to empowering technologically proficient and socially responsible citizens. This is in line with the view that education for sustainable development must be rooted in transformative values and cultural relevance[61]. In particular, the study responds to calls for educational models that promote critical digital literacy while strengthening social cohesion, as emphasized by Allaste and Waechter[62], who argue that participatory and justice-oriented citizenship should be nurtured in certain socio-cultural ecosystems.

The implications of this study are twofold. First, it offers theoretical enrichment by bridging digital citizenship theory with character education and local socio-cultural knowledge systems. Second, it suggests practical policy directions to integrate ethical and local dimensions into the national citizenship education curriculum. Therefore, the development of digital citizenship education should not be standardized globally, but rather adjusted to the cultural, ethical, and civic order of each community. Future research may adopt longitudinal, comparative, and interdisciplinary approaches to examine how these educational frameworks operate in various digital ecosystems and socio-political settings. Ultimately, this research contributes to a broader agenda to achieve SDGs 4.7 and 16 by advancing education that promotes sustainability, equity, and institutional trust in the digital age.

Author Contributions

This manuscript is the result of collaborative academic efforts. The conceptualization and preparation of the original draft was carried out by S.A., who developed a central theoretical framework, integrated the perspective of local wisdom, and articulated the normative foundations of character-based digital citizenship. The methodological design, including literature selection criteria and analytical synthesis, led by Y.Y., ensures a rigorous qualitative approach that is aligned with international standards of systematic literature review and interpretive analysis. Data curation and literature screening are carefully carried out by the S.F.R., which ensures the relevance, credibility, and scientific validity of the sources used. In addition, S.F.R. contributes substantially to the editing, correction, and refinement of the intellectual structure of the manuscript and the integrity of the citations. All authors have read and approved the final version of the manuscript and agree to be responsible for all aspects of the work.

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Institutional Review Board Statement

This research is a qualitative conceptual study based on secondary data obtained from open access academic publications and peer-reviewed literature. As such, it does not include empirical investigations involving human, animal, or sensitive data participants. In accordance with international standards of ethical academic research, this research does not require approval from the Institutional Review Board (IRB) or the Ethics Committee. All procedures adhere to strict scientific behavior and responsible publication practices.

Informed Consent Statement

This article is a literature-based conceptual study that does not involve human participants, personally identifiable data, or clinical interventions. Therefore, the obligation to obtain informed consent is irrelevant and does not apply in the context of this study. All data analyzed came from open secondary sources and have been published academically.

Data Availability Statement

This study is a conceptual-literature study that does not produce new primary data. Therefore, there is no dataset available for public sharing. However, all secondary data sources used are from publicly accessible literature through leading academic platforms, including the Scopus database, ScienceDirect, SpringerLink, and Taylor & Francis Online. Further information regarding the sources of literature used can be obtained from the authors of the correspondence upon reasonable request.

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Conflicts of Interest

The authors affirm that there are no conflicts of interest, whether financial or personal, that could have influenced the objectivity, integrity, or outcomes of the research presented in this article.

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