

# Digital Citizenship and Moral Reasoning: Integrating Ethical Online Behaviour into Teacher Training Curriculum for Lifelong Safety and Responsibility in Kenya

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## Abstract

*The rapid digital technology growth and increased internet use in education have elevated concerns about ethical online behaviour. Despite the expanding role of digital tools, current teacher training programmes exhibit significant gaps in preparing educators to handle digital ethical issues such as cyberbullying, privacy, misinformation, and lack of moral reasoning. This scenario poses risks to lifelong safety and responsibility. This study assessed teacher trainees' and teachers' exposure, confidence, and perceptions regarding ethical digital literacy. It also evaluated current curricular weaknesses and opportunities for improvement. The study was guided by Moral Development Theory by Kohlberg. It employed a systematic qualitative literature review design, targeting relevant journal articles, books, theses and dissertations published globally and within Kenya. A total of 51 scholarly sources were identified through database searches using keywords related to digital citizenship, moral reasoning, and teacher education. Data analysis focused on exposure, confidence, perceptions, and curricular contents. The findings indicated inconsistent integration of ethical online behaviour in teacher training, with prevailing low confidence among trainees and teachers in addressing digital moral reasoning. The findings highlight opportunities to strengthen curricula by incorporating structured digital citizenship modules. Therefore, embedding ethical online behaviour in teacher education is critical for nurturing responsible digital citizens capable of lifelong safety. This necessitates curriculum enhancement, capacity building for educators, and policy reforms by national educational authorities. The study informs teacher education practices and policies in Kenya, contributing to safer, ethically informed digital learning environments, and suggesting areas for future longitudinal and innovative research in digital literacy education.*

**Keywords:** Dual Citizenship, Moral Reasoning, Ethical Online Behaviour, Teacher Training Curriculum, Lifelong Safety and Responsibility

## Introduction

The transformative and widespread expansion of digital technologies has greatly shaped the 21st century. These technologies have reshaped global communication, commerce, and especially education in profound ways. This ongoing digital revolution offers unprecedented access to information, fosters collaborative opportunities across borders, and serves as a catalyst for innovation in pedagogical practices (Bitar & Davidovich, 2024; Munir *et al.*, 2024). However, alongside these advances, the digital revolution has also brought to surface multifaceted challenges surrounding online conduct, safety, and ethical engagement in digital spaces. The educational sector, in particular, has experienced a pronounced shift toward remote and blended learning models, a trend that was dramatically accelerated by the COVID-19 pandemic, necessitating the integration of digital platforms as an essential component of the learning ecosystem (Salakhova *et al.*, 2020). As UNESCO (2022) critically observes, the rapid global expansion and adoption of digital learning have not been matched by a corresponding development of comprehensive digital citizenship frameworks. This scenario has created a precarious digital environment where both learners and educators navigate complex online terrains often needing consistent ethical guidance.

Within the African context, the rapid penetration of digital technology has opened new avenues for educational inclusion yet simultaneously raised significant ethical and equity questions. Mutsvairo and Moyo (2023) highlight that across the continent, enhanced mobile broadband access and the affordability of smartphones have effectively bridged longstanding digital divides, bringing millions of new users into digital education ecosystems. Delaporte and Bahia (2022) note that the sub-Saharan Africa stands as the world's fastest-growing region in terms of mobile internet uptake. This development has accelerated the adoption of e-learning platforms and digital educational resources spanning primary to tertiary education in the region. Despite these positive outcomes, the rapid pace of digital adoption often outstrips the cultivation of essential digital literacy skills, particularly those related to ethical behaviour, critical thinking, and responsible online engagement. Adarkwah (2021) critiques many African educational technology initiatives for their predominant focus on enhancing access and infrastructure while often sidelining the equally critical "soft skills" of digital citizenship. Digital citizenship, in this case, encompasses the skills and competences to discern misinformation, protect privacy, and participate in respectful online discourse, dimensions which are vital to ensuring users' security and agency within increasingly complex digital environments.

Kenya exemplifies both the promise and challenges associated with digital transformation on the continent. The country has been a leading pioneer in embracing digital technologies, propelled by ambitious national initiatives such as the Digital Literacy Programme, which seeks to embed technology use within primary education. Additionally, Kenya's high penetration of mobile money and internet services underscores the country's emerging status as a digitally connected society. Empirical studies including those by Mwangi (2024) and Langat (2025) confirm that Kenyan teachers and students are accessing digital tools more extensively than ever before. Nevertheless, these studies simultaneously underscore a critical gap: despite the high exposure to digital platforms, systematic training on ethical online behaviours remains insufficient. This gap has manifested in growing concerns around cyberbullying, academic dishonesty, and the unchecked spread of misinformation within educational contexts. Consequently, the substantial investments made in digital infrastructure for Kenyan education necessitate a parallel and urgent investment in fostering moral reasoning and ethical digital practices. This is crucial not only for the immediate safety and wellbeing

of learners and educators but also for nurturing responsible digital citizens capable of sustained, lifelong participation in the digital age.

### **Digital Citizenship and its Importance**

Digital citizenship encompasses the commitment to and practical application of socially appropriate, responsible, and empowered use of digital technologies (Simsek & Simsek, 2013). It is a broad concept comprising a spectrum of competencies, including digital literacy, online etiquette, safety, and rights, which collectively enable individuals to engage actively and constructively within digital communities. Ribble and Park (2019) expand the understanding of digital citizenship beyond mere technical proficiency to encompass “the ability to engage in society online and participate in the civic and political processes of a nation.” In essence, digital citizenship seeks to cultivate a culture in which digital tools are employed not only effectively but also ethically and empathetically. It seeks to ensure that digital environments remain productive, respectful, and inclusive spaces for all users.

According to Emejulu and McGregor (2019), digital citizenship in education moves beyond conventional notions of technical proficiency to embrace a politically informed, critical understanding of the digital realm. These authors emphasize the need for a radical digital citizenship that highlights ongoing social struggles related to digital technology, particularly those entangled with inequality and injustice in both the Global South and North. This perspective challenges educators and learners to recognize that digital technologies are deeply embedded in power relations and socio-political contexts. Therefore, digital citizenship education seeks to not only equip individuals with the skills to navigate digital environments safely and effectively but to also foster critical awareness and emancipatory practices that advance social justice. The approach calls for an education that makes visible the structural inequalities in digital access and participation, empowering learners to become active, socially conscious digital citizens capable of challenging digital capitalism and advocating for equity.

For educators and learners, the integration of moral reasoning and ethical online behaviour forms a foundational pillar of effective digital citizenship rather than being a discretionary addendum (Richardson & Milovidov, 2019). Teachers serve critical roles as both exemplars and mentors in navigating the complex ethical dimensions that digital technology presents. These challenges include verifying the credibility of information, respecting intellectual property rights, mitigating cyberbullying, and safeguarding the privacy of students. Without a solid grounding in moral reasoning, educators risk allowing harmful digital behaviours to perpetuate unchecked, undermining both the learning environment and broader digital culture. Correspondingly, learners require these ethical skills to ensure their safety and foster responsible, lifelong participation in digital spaces. An empirical research in Korea by Choi and Park (2023) demonstrates that students who receive explicit instruction in digital ethics exhibit significantly improved capabilities to critically evaluate online information and engage in respectful online communication. In Kenya, Mwangi (2024) found that the absence of such training within teacher education programmes correlates directly with diminished teacher confidence in addressing digital misconduct, thus exposing students to increased vulnerability.

## Statement of the Problem

Despite the growing recognition of the critical role of digital citizenship in education, teacher training programmes in Kenya face significant challenges in effectively delivering these essential components. Key among these challenges is the pervasive lack of comprehensive and continuous training tailored specifically to digital ethics and moral reasoning (Nyakwama, Mwaniki & Koros, 2025). While many teacher education programmes provide basic ICT skills training, these efforts predominantly focus on technology operation rather than on embedding ethical frameworks and critical digital literacy into pedagogical practice. Research reveals that only a minority of teachers receive formal instruction on navigating complex digital ethical issues such as cyberbullying, privacy protection, misinformation, and digital rights (Ogutu, 2024). This gap is further exacerbated by limited access to adequate digital infrastructure and learning resources within many institutions, undermining teachers' ability to gain practical experience and confidence in applying digital citizenship principles effectively in the classroom. Consequently, many educators are underprepared to serve as ethical role models and facilitators of responsible digital behaviour, leaving students vulnerable in an increasingly complex digital landscape.

Moreover, systemic factors compound the training challenges, including curriculum constraints, insufficient policy focus, and a lack of alignment between teacher preparation programs and the rapid pace of technological change (Nyakwama *et al.*, 2025). Many curricula have yet to fully integrate structured modules on digital citizenship that account for the evolving nature of digital risks and ethical dilemmas educators and learners face (Prasetyo *et al.*, 2023). Furthermore, there is an absence of sustained professional development opportunities that reinforce and update educators' competencies in digital moral reasoning throughout their careers. The disconnect between growing digital tool availability and inadequate pedagogical preparedness has implications extending beyond the classroom, as it affects the broader objective of cultivating a digitally responsible citizenry capable of contributing safely and ethically to the digital economy and society (Richardson & Milovidov, 2019; Simon, 2025). Addressing these challenges requires a concerted effort to reform teacher training by embedding robust digital citizenship frameworks, enhancing educators' ethical literacy, and equipping them with the practical skills to guide learners in navigating digital environments critically and responsibly. In contribution to these efforts, this study systematically assessed the current levels of exposure, confidence, and perceptions among teacher trainees and practicing teachers in Kenya regarding ethical digital literacy within their professional training. Specifically, it evaluated how well teacher training programmes prepare educators to understand and address critical digital citizenship competencies, including ethical online behaviour, data privacy, cyberbullying prevention, and misinformation management.

## Research Objectives

The study addressed the following research objectives:

- To evaluate teachers' current exposure to and confidence with key digital citizenship topics
- To assess teachers' perceptions about integrating moral and ethical reasoning within digital literacy instruction
- To identify curriculum weaknesses and opportunities for ethics and moral reasoning integration within digital citizenship

## Theoretical Framework

The study was anchored on the Moral Development Theory proposed by Lawrence Kohlberg (1958). The theory elaborates the stages through which moral reasoning matures in an individual. According to Kohlberg, moral reasoning begins at the pre-conventional level, which focuses on obedience and self-interest. It then progresses through a conventional level that emphasizes conformity and law-and-order, to a post-conventional level characterized by abstract ethical principles and social contracts. Therefore, the theory is foundational in understanding how individuals develop the capability to make ethical decisions that impact their behaviour in social contexts.

Advancing on Kohlberg's work, Rest (1986) introduced the Defining Issues Test (DIT) to measure moral reasoning and critical reflection on ethical dilemmas. The DIT emphasizes cognition and the personal construction of moral judgment. The key indicators of moral reasoning as measured by the DIT include the extent to which an individual utilizes three primary moral schemas in their judgment of moral dilemmas: (1) the Personal Interests (PI) schema, where reasoning is focused on individual needs and relationships; (2) the Maintaining Norms (MN) schema, which emphasizes adherence to laws, rules, and social conventions, and (3) the Postconventional (P) schema, characterized by reasoning based on universal ethical principles, social contracts, and shared ideals open to debate and logical consistency. The DIT assesses these indicators through participants' ratings and rankings of the importance of various considerations in moral dilemmas, reflecting how strongly they use each schema in decision-making. Therefore, it provides a more practical and scalable assessment of moral reasoning across different contexts. Advancing on Kohlberg's Moral Development Theory, Narvaez (2008) also emphasized the importance of moral identity and context in moral development.

This study applied Moral Development Theory to understand how teacher trainees and practicing teachers can be helped to develop moral reasoning capacities relevant to ethical online behaviour. Given the digital age's complex ethical challenges engendered by advancements in digital technologies, including cyberbullying, privacy concerns, and misinformation, the theory helped in framing why and how crucial aspects of moral reasoning may be integrated within teacher-training curricula to preparing educators who foster responsible digital citizens.

## Methodology

The study employed a systematic qualitative literature review design. It focused on synthesizing findings from 51 scholarly sources, including journal articles, books, theses, and dissertations both globally and within Kenya. The target population for the literature included works relevant to digital citizenship, moral reasoning, and teacher education, reflective of the current teacher training contexts in Kenya. The 51 scholarly sources were sampled purposively. This involved sampling literature from database searches utilizing keywords related to digital citizenship and moral reasoning to identify the most pertinent and recent sources for review. Data collection involved systematic extraction and review of documented information on teacher trainees' and teachers' exposure, confidence, perceptions about ethical digital literacy, and curriculum content related to digital citizenship. The extracted data was then analysed and presented thematically. This method allowed for an in-depth understanding of gaps and opportunities for curriculum enhancement in Kenyan teacher education to integrate digital citizenship and moral development theory effectively.

## Results and Discussion

### Exposure and Confidence Among Teachers Regarding Digital Citizenship Topics

From the global context, research suggests that although the concept of digital citizenship is highly regarded, there is discrepancy between awareness and competence among educators. Research by Choi *et al.* (2018) and Villar-Onrubia *et al.* (2022) indicated that new forms of digital citizenship incorporate critical literacies and ethical engagement, not merely technical proficiency. Nonetheless, in practice, teachers often lack the confidence to teach these competencies. In a study in Turkey, Ata and Yildirim (2019) discovered that pre-service teachers' understanding of digital citizenship was overly narrow. Most teachers were concerned with digital literacy levels and online safety, with less exposure to such concepts as digital rights as well as moral reasoning and ethical communication. This deficit in hands-on experience has been strongly associated with anxiety and a lack of self-efficacy. According to Bayzan (2025), there is a high correlation between teachers' online privacy concerns and their digital citizenship behaviours. Therefore, in sophisticated technological environments, teacher preparation programmes fall short of repackaging theoretical conceptualizations on digital citizenship into hands-on pedagogical discourse and thus teachers are left anxious and underprepared.

Within Africa, the reviewed studies pointed to a region still grappling with foundational challenges, where digital citizenship is often a secondary concern to basic access and fluency. Studies from South Africa (Takavarasha *et al.*, 2018), Malawi (Gondwe *et al.*, 2023), and Tanzania (Fulgence, 2020; Hamisi, 2024) uniformly reported that digital fluency and competence among teacher educators and pre-service teachers remain the primary focus. The journey from digital literacy to digital citizenship is described as an “unbeaten track” (Takavarasha *et al.*, 2018), suggesting that systematic exposure to ethical online behaviour is rare. The findings from a study by Jere and Mpeta (2024) in South Africa's Limpopo Province further revealed that even digital competence evaluations often overlook specific citizenship components like combating misinformation or understanding digital footprints. These regional studies indicate a sequential challenge: educational systems in Africa prioritize the closure of the digital access divide, which has consequently delayed their addressing of the more complex digital citizenship divide. This creates a situation where teachers are being prepared to use technology, but not necessarily to critique it or guide ethical engagement with it.

In Kenya, the findings revealed a pronounced disconnect between ambitious national policies like the Competency-Based Curriculum (CBC) and the on-the-ground reality of teacher preparedness for digital citizenship. Recent studies consistently show that teacher training and professional development are overwhelmingly technocentric. Kingi (2025) and Njuguna *et al.* (2025) found that ‘digital literacy’ and ‘ICT integration’ are interpreted predominantly as the operational use of hardware and software for content delivery. The research by Kerkhoff and Makubuya (2022) provided a critical perspective, demonstrating that even transformative professional development programmes in Kenya focus on digital skills for teaching, with only peripheral attention to preparing teachers to foster critical digital literacies in their students. This was corroborated by Barasa (2021), whose report on digitalization in Kenyan teaching noted that policy discussions centre on infrastructure, with the ‘soft skills’ of ethics and safety remaining underexplored. The analysis indicates that the current model of ICT training in Kenya (Kiugu, 2020;

Njuguna *et al.*, 2025) is insufficient for developing the knowledge and skills required to teach students about data privacy or algorithmic bias.

A critical finding that transcended all contexts was the direct correlation between the quality of training and teacher confidence. Globally, Mannila *et al.* (2018) identified a strong link between digital competence and teacher self-efficacy, explicitly noting that targeted training directly reduces anxiety and increases confidence. This pattern has been echoed in underdeveloped regions of China, where Liu and Liu (2021) found that access to resources and training were the most significant factors influencing teachers' digital citizenship levels. In Kenya, the absence of high-quality, sustained professional development was a recurring theme in literature. Studies focusing on the Kenyan context by Fundi *et al.* (2024) and Kerkhoff and Makubuya (2022) demonstrated that when teachers are engaged in deep, contextually relevant, and sustained professional development, their confidence and transformative teaching abilities improve significantly. However, the prevailing model, as reported by Njuguna *et al.* (2025), is often short-term, sporadic, and focused on basic tool mastery. Therefore, the collective evidence underscores that teachers' and learners' confidence in digital media use is not an innate trait but a direct outcome of high-quality, continuous professional learning that moves beyond operational skills to include critical dialogue about ethics, safety, and citizenship.

The research findings show that teacher trainees and teachers in almost all contexts suffer from a significant deficit in both exposure to and confidence in teaching comprehensive digital citizenship. The global gap is one of *depth*, where frameworks exist but practical training is lacking. The African regional gap is one of *priority*, where citizenship is overshadowed by fluency. The Kenyan gap is one of *implementation*, where a technocentric interpretation of curriculum policy sidelines ethical and critical dimensions. Across the studies reviewed, there was a noted lack of large-scale, empirical data specifically measuring Kenyan teachers' self-efficacy in each discrete domain of digital citizenship such as cyberbullying intervention, privacy education. While studies like Kingi (2025) have assessed digital literacy's influence on CBC implementation, they do not disaggregate the specific competency of fostering ethical reasoning and online safety in students. This gap points to a critical need for further research that employs validated scales, like that of Choi *et al.* (2018), to diagnostically assess Kenyan educators' confidence levels. Such a study would provide a precise evidence base for designing targeted curriculum enhancements and professional development programmes.

### Teachers' Attitudes and Perceptions on Moral and Ethical Reasoning Integration

From the reviewed studies, educators overwhelmingly perceive the integration of moral and ethical reasoning as a fundamental, rather than peripheral, component of digital literacy. Across the globe, studies consistently revealed that teachers view digital citizenship as inherently value-laden, extending beyond technical skills to encompass ethical comportment online (Snyder, 2016; Ata & Yildirim, 2019). For instance, Martin, Gezer and Wang (2019) found that educators directly associate students' digital citizenship practices with their broader character development. However, this strong endorsement is tempered by a pervasive lack of confidence in implementation. Research by Sadaf and Johnson (2017), grounded in the Theory of Planned Behaviour, indicates that positive attitudes alone are insufficient for integration; the perceived lack of behavioural control, stemming from unclear curricula and inadequate training, is a major barrier. This is further complicated by subject-specific biases. Similarly, Almethen and Alomair (2024)

found that teachers in non-technical subjects often perceive digital ethics as outside their purview. Therefore, while a global consensus exists on the *why*, a significant gap remains in the *how*, which leaves teachers philosophically committed but pedagogically stranded.

Within the African context, the perception of ethics integration in technology is strongly framed within established paradigms of moral and character formation. Studies from Ghana (Mensah *et al.*, 2025), South Africa (Boateng *et al.*, 2017), and Zambia (Bwalya, 2025) revealed that educators view digital technologies not as neutral tools but as influential forces that can either support or undermine traditional communal values and moral education. A study by Bwalya (2025) on mobile phones in Zambian schools was particularly illustrative, highlighting administrators' and teachers' perceptions of technology as a direct competitor to the school's moral formation mission, citing concerns over exposure to inappropriate content. This situates the challenge as a moral crisis as much as a technical one. Consequently, as argued by Osiesi *et al.* (2025), teacher professional development in this realm is seen not merely as skills-upgrading but as a vital reinforcement of professional ethics to navigate these new digital moral dilemmas. Therefore, in the African regional context, the integration of digital ethics is perceived as a critical defence mechanism for preserving socio-cultural values in the face of rapid technological intrusion.

In Kenya, teachers' perceptions reflect a tension between recognizing the urgent need for digital ethics and experiencing a curriculum and support system that is ill-equipped to address it. Studies indicated a positive general attitude towards ICT implementation (Bariu & Chun, 2022), but this did not translate into confidence in teaching its ethical dimensions. A research by Gitiha *et al.* (2024) focusing on Christian Religious Education (CRE) showed that while students and teachers perceived educational technologies as beneficial, the focus was on content delivery, with little to no explicit connection made to ethical online behaviour, despite CRE's inherent focus on morality. This indicates a significant disconnect. Furthermore, teachers' perceptions are shaped by direct encounters with digital harms. Ong'ong'a (2021) documented that Kenyan teachers are acutely aware of online risks faced by teens, such as cyberbullying and sexting, which fuels their perception of a critical need for ethical instruction. However, as Nyangaresi, Nasongo and Injendi (2024) found, the moral strategies employed in schools remain traditional and offline, failing to adapt to the digital contexts in which students' character is now being tested.

Across all contexts, teachers' perceptions of the challenges to integration are multifaceted, spanning practical, institutional, and philosophical domains. A universal concern is the lack of collaborative and institutional support, including insufficient professional development and a lack of clear policy guidelines (Snyder, 2016; Mrisho, 2023). In Tanzania, Mrisho (2023) found that educational stakeholders, including teacher educators, perceived a significant gap in "ethical literacy" regarding new pedagogical technologies, pointing to a systemic failure in initial teacher training. In Kenya, Katete (2024) identified that a lack of trust in digital systems and infrastructure directly impacts educators' willingness to engage deeply with the digital realm, including its ethical instruction. Philosophically, a key challenge perceived by teachers, particularly in non-Western contexts, is the potential clash between global, often Western-centric, digital citizenship frameworks and local cultural and religious values. This reinforces the finding from the African region that integration is perceived as needing careful contextualization to align with, rather than undermine, local moral frameworks.

The findings present a clear narrative: teachers perceive the integration of moral and ethical reasoning as critically important, yet this perception is fraught with anxieties stemming from pedagogical unpreparedness, systemic neglect, and cultural tensions. A critical knowledge gap emerging from the review is the lack of research into effective, context-specific pedagogical models for this integration. While studies like Gómez-Trigueros (2025) have explored teacher self-perception through frameworks like TPACK, there is a scarcity of action research or intervention studies in the African and Kenyan context that trial and evaluate specific teaching strategies for digital moral reasoning. Furthermore, a significant gap exists in understanding how to bridge the perceived divide between traditional moral education subjects (like CRE) and the modern digital ecosystem. Future research should therefore focus on co-designing, with teachers, practical curricular modules that embed ethical dilemmas and moral reasoning exercises directly into digital literacy instruction, providing the much-needed pedagogical bridge between positive perception and effective practice.

### Current Status and Trends in Teacher Training Curriculum for Digital Citizenship

The study sought to determine diverse frameworks for digital citizenship to provide a clear and comprehensive blueprint for curriculum development. Foundational work by Ribble (2015) outlines the “nine elements,” while the Council of Europe's handbook (Richardson & Milovidov, 2019) expands this to include well-being and rights online, advocating for a holistic approach. A key trend identified by Villar-Onrubia *et al.* (2022) is the necessary shift from operational digital literacy towards critical digital literacy, which empowers learners to critique digital power structures and engage as ethical agents. However, a significant weakness lies in the translation of these frameworks into initial teacher education (ITE) curricula. In their study, Vieira and Pedro (2023) found that ICT integration in ITE is often superficial, fragmented across subjects, and disconnected from pedagogical practice, resulting in teachers who are ill-equipped to deliver the nuanced, critical content these frameworks demand. The analysis indicates that the global strength of having well-articulated models is nullified by a systemic failure to embed them deeply and cohesively into the very programs tasked with preparing future educators.

Within the sub-Saharan Africa, the primary curriculum weakness noted in literature was the persistent digital literacy gap at the systemic level, which precludes the effective integration of advanced digital citizenship topics. Ndibalema's (2025) systematic review concluded that higher education institutions in the region are struggling to foster basic 21st-century digital skills, let alone the critical and ethical layers of digital citizenship. This is rooted in foundational problems within teacher training itself. Mollo's (2019) doctoral research focusing on South Africa found that the integration of ICT into pre-service curricula was hampered by a lack of coordinated policy, inadequate infrastructure, and insufficiently trained teacher educators. The reviewed studies from the African region reveals a sequential crisis: the curriculum for teachers lacks fundamental digital literacy, creating a cascading failure where they cannot possibly be expected to teach digital citizenship to their students. The strength, however, lies in a growing scholarly and policy recognition of this gap, as evidenced by these studies, which provides a foundation for targeted interventions.

In Kenya, the advent of the Competency-Based Curriculum (CBC) represents a significant strength and a stated opportunity for integrating digital citizenship. The CBC's philosophy, as analysed by Ogada (2025), is inherently aligned with fostering the skills required for responsible digital engagement, such as critical

thinking and problem-solving. However, a critical weakness is the implementation gap. Empirical studies reveal a curriculum delivery that remains overwhelmingly technocentric. Research by Simiyu (2025) focusing on student perspectives found that digital tools in junior schools are primarily used for content access and rote learning, not for the collaborative, ethical, and critical tasks the CBC promises. This aligned with the long-standing critique by Ongesa (2020) that the Kenyan curriculum, despite reforms, retains a significant "critical thinking skill gap." The interpretation is that without explicit modules and pedagogical guidance on digital ethics, the CBC's potential is undermined, and technology use defaults to reinforcing traditional, passive learning methods rather than fostering the active, ethical digital citizenship it aims to develop.

From the reviewed studies, one universal weakness identified across all contexts was the misalignment between the complex goals of digital citizenship and the assessment methods used to evaluate them. The global frameworks of Ribble (2015) and the Council of Europe emphasize the assessment of behaviours, attitudes, and ethical reasoning. However, in practice, as noted by Prasetyo *et al.* (2021) in their systematic review, assessment often defaults to measuring factual knowledge about online safety or technical proficiency, rather than a student's ability to navigate an ethical dilemma or deconstruct digital misinformation. This deficiency in authentic assessment is a critical curriculum flaw, as it signals to both teachers and students that the ethical dimensions are less important than the procedural ones. In the Kenyan context, this is compounded by the challenges noted by Tarus, Gichoya and Muumbo (2015), where basic e-learning implementation remains a hurdle, pushing sophisticated assessment of digital ethics even further down the list of curricular priorities.

The findings revealed a clear trajectory for curriculum improvement for the realization of digital citizenship ideals. There is however a global-to-local disconnect between ambitious frameworks and shallow implementation. This disconnect is exacerbated in Africa and Kenya by foundational resource gaps and a technocentric focus. The central opportunity lies in leveraging the strengths of existing global models and Kenya's own CBC reform. The key is to move from implicit hope to explicit integration. This requires designing structured digital citizenship modules for Kenyan Teacher Training curricula that are grounded in the critical digital literacy perspective of Villar-Onrubia *et al.* (2022) and aligned with the competency-based approach envisaged in the CBC (Ogada, 2025). That said, there remains a lack of contextually relevant, scalable models for assessing digital citizenship and ethical reasoning in low-resource environments. Future research must, therefore, focus on developing and validating practical assessment tools, such as scenario-based evaluations or digital portfolio tasks, that can measure the complex competencies of digital citizenship.

## Conclusion and Recommendations

This systematic review demonstrates a critical and consistent gap in teacher education regarding digital citizenship across global, regional and local contexts. The findings revealed that teacher trainees and practicing teachers in Kenya, mirroring trends elsewhere, possess low levels of exposure and confidence in addressing key digital citizenship topics such as cyberbullying, data privacy, and misinformation. While they perceive the integration of moral and ethical reasoning as fundamentally important, this positive attitude is thwarted by a curriculum that is predominantly technocentric, fragmented, and lacks the pedagogical depth for meaningful implementation. The identified curriculum weaknesses, including a focus

on technical skills over critical literacy, misaligned assessment methods, and insufficient teacher preparedness, highlight a systemic failure to translate the competencies envisaged in the CBC into practice. These findings have a direct implication for the safety and ethical development of learners; without confident, well-prepared teachers, efforts to create a responsible digital citizenry are fundamentally compromised.

Therefore, the integration of comprehensive digital citizenship and ethical reasoning into teacher education is not an optional enhancement but an urgent imperative for fostering lifelong safety and responsible participation in the digital age. This study underscores that curriculum reform must move beyond infrastructure and operational skills to explicitly embed structured modules on digital ethics, supported by robust capacity-building for teacher educators. This study was limited by its reliance on a systematic review of existing literature, which, while revealing broad trends, points to the need for primary empirical research within Kenya. Future research should employ diagnostic surveys and Rest's Defining Issues Test (DIT) to quantitatively measure teacher confidence levels and conduct action research to co-design and evaluate context-specific pedagogical models and assessment tools for digital moral reasoning.

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