

Fostering Digital Citizenship for Safer Digital School Environments: A Systematic Analysis of Cyberbullying Prevention Strategies Among Students

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ABSTRACT

The era of Society 5.0 and the digital transformation of education present serious challenges, including the rise of cyberbullying among students. Although previous research has primarily focused on curriculum guidelines and technical constraints as separate issues, little attention has been paid to developing a comprehensive prevention framework that integrates individual attitudes within a cohesive macro-level ecosystem. This study aims to analyze cyberbullying prevention strategies through a digital citizenship approach to create a safe digital school environment. The method used is a Systematic Literature Review (SLR) of 25 high-quality studies. The conceptual novelty of this study lies in integrating global digital citizenship with national civic values and theories of moral development. The thematic synthesis results revealed a prevention ecosystem based on three pillars: integrating digital ethics into Pancasila education, providing a 24/7 anonymous reporting system, and enhancing communication between schools and parents. Sustainable digital safety relies on integrating three key pillars that encourage shared responsibility and help create a safer school environment.

ABSTRAK

Kata-kata kunci:

Etika digital;
lingkungan sekolah digital;
karakter kewarganegaraan.

Penguatan Kewargaan Digital untuk Mewujudkan Lingkungan Sekolah Digital yang Lebih Aman: Analisis Sistematis terhadap Strategi Pencegahan Cyberbullying pada Peserta Didik. Era Society 5.0 dan transformasi digital dalam pendidikan menghadirkan tantangan serius, salah satunya meningkatnya kasus cyberbullying di kalangan peserta didik. Meskipun penelitian terdahulu sebagian besar berfokus pada pedoman kurikulum dan kendala teknis secara terpisah, masih terdapat kesenjangan dalam pengembangan kerangka pencegahan yang komprehensif dengan mengintegrasikan sikap individu ke dalam suatu ekosistem makro yang terpadu. Penelitian ini bertujuan menganalisis strategi pencegahan cyberbullying melalui pendekatan kewargaan digital untuk mewujudkan lingkungan sekolah digital yang aman. Metode yang digunakan adalah Systematic Literature Review (SLR) terhadap 25 artikel berkualitas tinggi. Kebaruan konseptual penelitian ini terletak pada integrasi konsep kewargaan digital global dengan nilai-nilai kewargaan nasional serta teori-teori perkembangan moral. Hasil sintesis tematik mengungkapkan suatu ekosistem pencegahan yang dibangun atas tiga pilar utama, yaitu integrasi etika digital dalam Pendidikan Pancasila, penyediaan sistem pelaporan anonim selama 24 jam setiap hari, serta penguatan komunikasi antara sekolah dan orang tua. Temuan penelitian menunjukkan bahwa keberlanjutan keamanan digital bergantung pada integrasi ketiga pilar tersebut untuk menumbuhkan tanggung jawab bersama dan mewujudkan lingkungan sekolah yang lebih aman.

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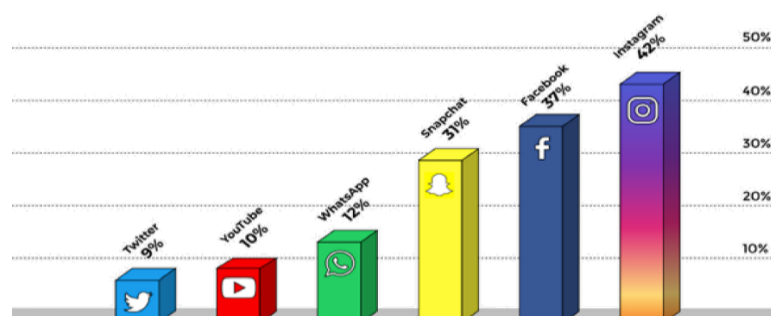
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Introduction

The advent of Society 5.0, a human-centered paradigm that harmonizes advanced technologies with societal well-being, offers transformative potential to improve quality of life through the ethical, inclusive, and socially responsible integration of digital innovation (Atay et al., 2025). In education, digital transformation not only enhances learning effectiveness and 21st-century skills (Kalyani, 2024) but also offers more personalized and interactive learning experiences, particularly when supported by equitable access to technology and inclusive digital content (Joseph et al., 2024). Such an approach enables learners from diverse backgrounds not only to access information but also to meaningfully participate in a digital ecosystem that supports their intellectual growth, social development, and active engagement as responsible digital citizens (Sartika et al., 2024).

Nevertheless, the accelerated digitalization of educational environments has inadvertently increased exposure to digital risks, particularly among adolescents, who are highly vulnerable to online harm. Characterized by identity exploration, a deep need for social acceptance, and still-maturing emotional regulation, teens are particularly vulnerable to online pressure, manipulation, and harmful content. This susceptibility is intensified by evolving body-image concerns and the constant search for validation on social media, where public, visible, and permanent posts encourage comparisons to idealized beauty standards. These conditions heighten the risk of self-objectification, body dissatisfaction, and appearance-based cyberbullying, underscoring the importance of comprehensive digital citizenship education to safeguard and empower young people in the digital era (Demaria et al., 2024). However, these advancements can become a threat if not accompanied by an adequate understanding of digital citizenship. A lack of such awareness may lead to various issues, including a rise in cyberbullying and digital crimes among students (Destiny et al., 2025).

However, reality reveals that easy access to digital technology, when not accompanied by adequate understanding of digital citizenship, has given rise to a host of complex, multifaceted problems. Without a solid foundation in digital citizenship, young users may unintentionally engage in harmful online behaviors or become easy targets of exploitation, harassment, and abuse, thereby undermining the very promise of an inclusive, safe, and empowering digital society. To further understand the contexts in which cyberbullying most frequently occurs, it is essential to identify the digital platforms most commonly used by students and thus most likely to serve as channels for such harmful behavior. Figure 1 below presents an overview of the proportion of social media platforms involved in cyberbullying incidents, as reported in recent studies.



Source: (MohammedJany, Killi, Rafi, & Rizwana, 2025)

Figure 1: Cyberbullying occurs mostly on social media

Figure 1 illustrates that cyberbullying is heavily concentrated on highly engaging, visually driven platforms, with Instagram ranking highest at 42%, followed by Facebook (37%), Snapchat (31%), WhatsApp (12%), YouTube (10%), and Twitter (9%). These statistics substantiate the argument that rapid digital expansion among students primarily channels into peer-dominated networks where anonymous and appearance-based harassment thrives. Consequently, this localized risk matrix demonstrates the inadequacy of traditional, technical literacy programs. By highlighting that victimization occurs on platforms central to students' daily social exploration, the data support the thesis that school defenses must transition from generalized technology rules to platform-specific, ethically grounded digital citizenship education.

These findings are directly relevant to the theme of Fostering Digital Citizenship for Safer Digital School Environments, as they indicate that widely used platforms such as Instagram and Facebook, which students access most frequently, are also the most vulnerable spaces for cyberbullying. Consequently, prevention efforts should prioritize digital citizenship education tailored specifically to these platforms, including instruction on ethical online interaction, privacy protection, and effective reporting mechanisms for negative experiences. Without such understanding, widespread access to digital technologies may inadvertently pose risks to students' mental well-being and online safety.

The case of Amanda Todd, a teenager from British Columbia, Canada, serves as a global warning about the devastating consequences of online abuse. Beginning at age 12, she was subjected to online sexual exploitation, severe cyberbullying, in-person school bullying, and physical assault by peers. In October 2012, she posted a viral video recounting her ordeal using handwritten cards and died by suicide shortly afterward (Butts, 2024). As emphasized by Fatmawati et al. (2023), although cyberbullying occurs in virtual spaces, its impact on victims is profoundly real, manifesting as emotional distress, low self-esteem, trauma, and even mental health disorders. This phenomenon is no longer an isolated incident but a widespread social issue affecting numerous countries, including Indonesia (Fatmawati et al., 2023). In Indonesia, the situation is particularly alarming. Minister of Communication and Digital Affairs, Meutya Hafid, revealed that 48% of child internet users have experienced cyberbullying, underscoring that large-scale digital education is essential for prevention (Safitri & Prabowo, 2025). Recent empirical evidence further demonstrates that Southeast Asian nations, particularly Indonesia, exhibit elevated cyberbullying prevalence rates attributable to rapid internet penetration combined with insufficient digital literacy infrastructure within educational institutions. These findings highlight a critical concern: digital literacy focused solely on technical skills, without ethical awareness and safe online behavior, can itself become a serious societal issue.

To address the limitations highlighted in the prior literature, this study builds on a comprehensive evaluation of prior research. Specifically, Winarno, Destiny, and Kardiman (2024) explored the qualitative urgency of integrating digital ethics into higher education curricula, arguing that rampant moral degradation among university students necessitates anchoring cybersecurity education in core courses such as Pancasila and Civic Education to

foster positive online behaviors. Complementing this conceptual approach, Destiny, Winarno, Rejekiingsih, and Al Rasyid (2026) provided a quantitative empirical baseline by measuring anti-cyberbullying attitudes among Generation Z in Surakarta across cognitive, affective, and conative dimensions. Their findings revealed strong cognitive and affective rejection of negative online behaviors, alongside a 90% conative commitment to digital ethical standards, thereby validating psychological frameworks such as the Theory of Planned Behavior (TPB) and the Barlett & Gentile Cyberbullying Model (BGCM) for understanding how perceived anonymity shapes aggressive online intent.

However, a distinct research gap remains because these previous studies operate in isolation. The existing literature is split between purely conceptual curriculum designs at the university level and descriptive quantitative assessments of Gen Z's internal attitudes without systemic application. There is a critical lack of systematic analysis that maps how these individual empirical attitudes can be operationalized within a broader macro-prevention framework at lower educational levels (K-12 school environments), where adolescent vulnerability to online harm is heavily concentrated. Furthermore, previous interventions remain heavily confined to traditional classroom instruction, leaving an underexplored gap regarding how platform-specific digital citizenship can be structurally paired with real-time technological safeguards and community-level enforcement.

To bridge this gap, this study offers a unique conceptual novelty by using a Systematic Literature Review (SLR) to translate both regional empirical behavior and global moral frameworks into a structural, three-pillar preventive ecosystem. The novelty of this review lies in its comprehensive integration of national civic principles, specifically drawing upon Indonesia's Pancasila Education and Thomas Lickona's cognitive-moral development with global digital citizenship dimensions. By expanding the scope of prevention from mere classroom lessons to a unified architecture that integrates curriculum, employs automated, 24/7, anonymous reporting technologies, and fosters active school-family partnerships, this article provides significant added value. It offers educational policymakers and institutions an evidence-based roadmap to transition from generalized technology restrictions to platform-specific, ethically grounded digital school environments.

The conceptual novelty of this review lies in its integration of national civic values (specifically, Pancasila education) with global dimensions of digital citizenship to formulate a cohesive prevention ecosystem. By doing so, this article provides significant added value to the field of moral and civic education by outlining clear pedagogical mechanisms through which students internalize digital ethics and develop digital moral agency to resist online harassment actively. Digital Citizenship offers a sustainable response, yet its use for cyberbullying prevention in Indonesia remains underexplored and needs systematic study. To address the research question "What strategies can prevent student cyberbullying to realize digitally safe schools?"

Method

This study employs a Systematic Literature Review (SLR) approach, which provides a structured, transparent, and replicable framework for evaluating existing research and

identifying academic gaps grounded in a clear, foundational objective (Carrera-Rivera, Ochoa, Larrinaga, & Lasa, 2022). Conducted from October to December 2025, the review focuses on cyberbullying prevention through the lens of digital citizenship as conceptualized by Ribble and Bailey. The systematic process involved formulating a distinct research focus, defining strict inclusion and exclusion criteria, searching major academic databases, critically appraising scholarly sources, and synthesizing evidence-based best practices to foster safe, respectful, and inclusive digital school environments. This study systematically evaluated relevant literature through a transparent and replicable multi-phase process:

1. Sources & Search Strategy: Academic literature was retrieved from Scopus, Web of Science, ERIC, and Dimensions using the search string: (*"digital citizenship" OR "digital ethics" OR "cyber civic engagement"*) AND (*"cyberbullying prevention" OR "online harassment" OR "cyber-bullying intervention"*) AND (*"students" OR "school environment" OR "adolescents"*).
2. Inclusion & Exclusion Criteria: Eligible records were peer-reviewed articles (empirical or conceptual) published between 2021 and 2026 in English or Indonesian, focusing on K-12 or higher education settings. Book reviews, conference abstracts, purely technical software papers, and studies lacking DOIs or open institutional access were excluded.
3. Screening & Selection Process: The initial search identified 145 records. After removing 47 duplicates, the remaining 98 unique papers were screened by title and abstract, resulting in the exclusion of 54 records. A full-text eligibility and quality appraisal, including evaluations of research design clarity, sample appropriateness, and analytical rigor, was performed on the remaining 44 articles, excluding 19. A final sample of 25 high-quality studies met all conditions for the review.
4. Data Extraction & Synthesis: Key bibliographic and empirical details were logged into a structured spreadsheet. The dataset underwent thematic synthesis, clustering findings into three strategic pillars: curriculum integration, anonymous reporting systems, and school-family collaboration.

The sequential entry and elimination of studies at each phase are visually mapped in Figure 3.

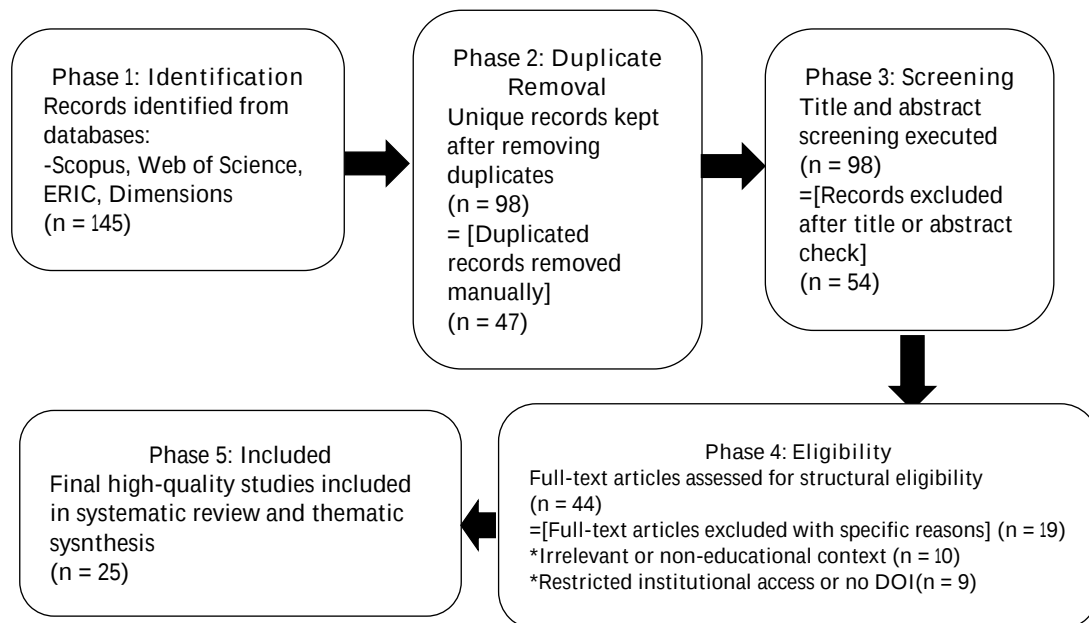


Figure 2. Prisma Method

To ensure the transparency, analytical rigor, and reproducibility of this systematic review, we mapped out the core features of the selected literature. Table 1 systematically organizes the structural and contextual profiles of the included studies, focusing on their timelines, geographic locations, research methods, participant characteristics, and primary empirical findings.

Table 1. Characteristics and Key Findings of Studies Included in the Systematic Literature Review

No.	Author & Year	Geographic Context	Research Method	Sample Character	Primary Empirical Findings
1.	(Winarno, Destiny, & Kardiman, 2024)	Indonesia	Qualitative	Higher Education	Argues that digital ethics instruction must be intentionally integrated as a core component of Pancasila and Civics character education rather than a temporary add-on to prevent cyberbullying.
2.	(Bal & Akcil, 2024)	Cyprus	Qualitative	Pre-service Teacher Candidates	A 10-week online training framework focusing on Ribble's digital ethics, rights, and security elements significantly improves digital citizenship attitudes.

3,	_(Booblab & Pasitpakakul, 2023)	Thailand	Quantitative	Undergraduate Students	Higher levels of digital etiquette and constructive online participation serve as active protective factors that drastically reduce engagement in harmful digital behaviors.
4.	_(Lukács, et al., 2023)	Europe	Quantitative	Primary Students	School Structured cyberbullying prevention programs yield a 10–15% decrease in bullying perpetration and a 14% reduction in overall user victimization.
5.	_(Messman, et al., 2024)	USA	Systematic Literature Review	K-12 School Environments	Verifies that anonymous digital reporting platforms increase incident disclosure rates threefold by successfully reducing students' psychological barriers and fear of exposure.
6.	_(Khumaeroh, Oktaviano, Iqbal, & Bagaskoro, 2025)	Indonesia	Mix Methods	Parents, Prospective Students, and School Guardians	Interactive, collaborative workshops successfully raise parental commitment to concrete digital safety action from 55% to 92%

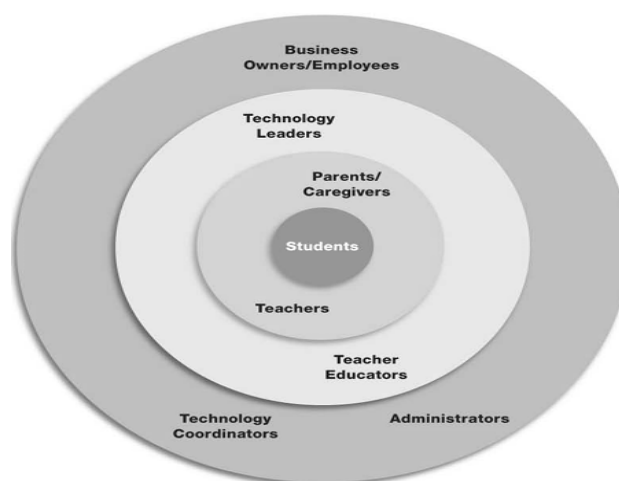
Results and Discussion

Cyberbullying has become a major global challenge because it extends beyond school boundaries and can occur anytime online, making it difficult to detect and manage. Its impacts go beyond victims' psychological distress, also weakening classroom climate and students' sense of safety, often leading to depression, anxiety, and academic disengagement. Digital citizenship offers a preventive solution by enabling students to act ethically and responsibly in digital spaces ([Hamayel & Hawamdeh, 2022](#)). Some countries, such as Italy, have integrated it into teaching practices. However, stronger institutional support remains necessary ([Corradini & Nardelli, 2022](#)), while broader studies in Europe highlight the need for collaboration among educators, policymakers, and technology platforms.

Effective prevention requires embedding digital citizenship into school culture alongside Media Literacy Education (MLE), which trains students to critically access, evaluate, and reflect on digital content (Sopilko, 2025). When combined with social-emotional learning, this approach fosters empathy, digital awareness, and the skills to resist and report harmful behavior (Al-Qallaf, 2025). Whole-community involvement, including teachers, parents, and students, ensures a more sustainable reduction of cyberbullying (Indra & Jasiah, 2024), making digital citizenship a shared responsibility rather than isolated instruction (Milenkova & Lendzhova, 2021). A safe digital space is an environment where users, especially children, can interact securely and respectfully online (DCO Member States, 2024). Safety frameworks now emphasize both technical protection and the development of positive online norms. In Indonesia, rising internet use among students highlights a gap between digital access and literacy, requiring systematic prevention strategies.

These strategies align with Ribble and Bailey's digital citizenship framework, emphasizing ethics, responsibility, and safety (Ribble, 2015). Integrating curriculum-based instruction, anonymous reporting systems, and parent-student engagement strengthens inclusive digital citizenship. A multi-layered ecosystem places students at the center and is supported by teachers, parents, administrators, and institutions, ensuring collective responsibility for building safe and responsible digital learning environments.

Figure 2 establishes a sophisticated theoretical framework that shifts cyberbullying prevention from isolated disciplinary actions to an ecosystem-based model of shared responsibility. Rather than treating students as isolated digital actors, this concentric circle matrix positions them at the core of a dynamic, multi-layered support network. The inner ring demonstrates that immediate behavioral intervention depends heavily on the synchronized guidance of parents and teachers. Moving outward, the model highlights how sustainable digital school environments require structural backing from teacher educators and technology coordinators who manage the institutional infrastructure. Finally, the outer ring bridges localized actions with systemic governance by incorporating policy-level actors and technology leaders.



Source: (Ribble, 2015)

Figure 3: Target for teaching digital citizenship

The concentric circle model illustrates a multi-layered ecosystem for digital citizenship and cyberbullying prevention in schools (Ribble, 2015). At the center are students as the primary focus, surrounded by parents/caregivers and teachers who directly shape daily digital behavior. The next layer includes teacher educators and technology coordinators who provide training and infrastructure, while the outer layer involves administrators, policymakers, and industry actors who shape systemic digital environments. This structure emphasizes that effective cyberbullying prevention depends on coordinated responsibility across all levels, not isolated interventions.

Schools must embed digital citizenship as a cross-cutting principle integrated into teaching, policy, and community practices (UNICEF, 2017). Grounding learning in Ribble and Bailey's principles especially digital etiquette, rights, responsibilities, and safety helps students internalize ethical digital behavior (Bose, 2024). Classroom strategies such as collaborative projects, peer discussions, and cyberbullying simulations strengthen these values in practice (Ghosh et al., 2025). This aligns with a human-centered approach in which technology supports ethical development and social well-being.

Such integration builds digitally responsible learners who recognize the ethical consequences of online actions (Singh & Kharbanda, 2025). Schools thus fulfill their role not only in academic instruction but also in shaping ethical character in digital environments (Haetami et al., 2024). Ribble's framework reinforces empathy, responsibility, and ethical reasoning as core competencies for safe digital participation.

A safe digital school requires ecosystem-wide collaboration in which students, parents, and teachers jointly reinforce digital values through daily interactions (Pibooltaew & Chantarakamol, 2025). Broader stakeholders—including leaders, educators, and policymakers provide structural support, ensuring consistent implementation across institutions (Šimek, 2025). This shared responsibility model positions cyberbullying prevention as a collective commitment to building digital spaces grounded in dignity, justice, and responsible citizenship.

A. Curriculum Integration in School

Based on Article 3 of Indonesia's National Education System Law No. 20 of 2003 (UU Sisdiknas), education must develop students' intellectual, spiritual, emotional, and social potential while instilling morality, ethics, and responsible citizenship. Integrating digital citizenship and cyberbullying prevention into Pancasila and Civics Education fulfills this mandate and ensures safety both offline and online. Article 36 further requires curricula to reflect national values and to respond to digital transformation, thereby making the integration of digital ethics a legal and pedagogical necessity.

Inclusive digital education is also emphasized by Sloutman et al. (2022) through the I-TPACK model, which extends TPACK by adding inclusion knowledge. It highlights six strategies: reflective practice, understanding student diversity, content diversification, accessible teaching, inclusive climate building, and institutional collaboration. These ensure equitable and responsive digital learning environments. Winarno et al. (2024) stress that digital ethics must be embedded in Pancasila and Civics Education as core anti-cyberbullying content. Pancasila values such as humanity, justice, and democracy provide a moral foundation against

online abuse (Datu et al., 2024). These values can be operationalized through case studies, discussions, and digital simulations (Alrahman & Fauzi, 2025). However, ethical instruction must be supported by socio-emotional Learning, such as empathy and emotion regulation, to ensure behavioral transformation (Tian & Tang, 2025; Arifin, 2022). Without this, ethical knowledge alone is insufficient in anonymous digital environments (Webster, 2025).

Social-emotional education strengthens resilience and helps students internalize the consequences of cyberbullying (Polanin et al., 2022). Project-Based Learning enhances engagement through real digital campaigns, while teacher competency development is essential for effective implementation (Prasetyo et al., 2023; Niemi et al., 2024). Studies show that structured digital citizenship improves behavior and reduces harmful online actions, although gaps remain in teacher competence, infrastructure, and civic participation (Booblab & Pasitpakakul, 2023; Garzon-Artacho et al., 2021; Ananto & Ningsih, 2023). Literature confirms that technical literacy alone is insufficient; cognitive-moral development is essential. Integrating digital citizenship within Pancasila Education fosters moral agency through Lickona's developmental stages, encouraging empathy and responsibility in online interactions (Lickona, 1974). Ribble's framework further strengthens this by operationalizing digital etiquette and rights into behavioral norms. Overall, embedding ethics into structured civic education transforms digital citizenship from theoretical knowledge into active moral practice, reducing cyberbullying and fostering responsible digital behavior.

B. Digital-Based Student Reporting System

An anonymous student reporting system designed to safeguard whistleblowers provides an effective strategy for preventing cyberbullying in digital school environments. Such systems significantly increase reporting rates, with students being three times more likely to report incidents when anonymity is guaranteed (Messman et al., 2024). Mobile-based infrastructure enables real-time reporting and immediate intervention, making 24/7 accessible platforms essential (Rattanawiboonsom et al., 2025). Studies show that tools such as SafeTalk, AI-based detection systems using machine learning and NLP, and Progressive Web Apps collectively enhance reporting, detection, and institutional response (Wahyu et al., 2023; Perera & Fernando, 2024; Rusydi et al., 2022).

However, effectiveness depends on student trust, transparency, and institutional accountability. Evidence shows cyberbullying interventions can reduce involvement by 10–15% and victimization by 14% (Lukács et al., 2023). Trust must be built through clear data protection policies, consistent procedures, and fair responses to reports. Anonymous reporting systems function as early warning mechanisms, requiring structured verification, evidence analysis, and balanced disciplinary procedures. Sustainability depends on continuous evaluation and institutional commitment. The literature strongly supports the view that confidential digital reporting increases disclosure, but a shift is emerging from manual reporting to AI-driven, real-time detection systems. This transition moves responsibility from victims to automated safeguards, aligning with Digital Law and Digital Security within Ribble's framework.

C. Integrated Socialization Involving Parents and Students

Cyberbullying typically occurs outside school on digital platforms beyond teachers' direct control (PACER's National Bullying Prevention Center, 2025). To address this, schools should

implement interactive workshops using real cases, followed by parent–student discussions to develop joint solutions and extend prevention into the home (Azzahra, et al., 2023). Effective implementation requires careful planning, skilled facilitators, and adequate school resources. Parents play a key role in guiding children's digital behavior and must continuously improve their digital literacy to act as “digital educators” at home (Najwa, et al., 2023). Parental involvement should include active monitoring, early detection of behavioral changes, appropriate responses such as reporting incidents, setting screen-time limits, and maintaining open communication (Marieif, et al., 2024). Despite challenges such as time constraints and digital gaps, student engagement is essential to foster empathy, awareness, and positive peer norms.

The effectiveness of this participatory approach is evidenced by a program in West Bandung Regency, where parental understanding rose from 48% to 87% after workshops. In comparison, commitment to preventive action increased from 55% to 92%, indicating strong readiness for behavioral implementation. This increase is crucial because cyberbullying prevention depends on translating knowledge into action. Participants also gained practical skills in screen-time management, digital etiquette, and parental control tools (Khumaeroh et al., 2025). Schools are therefore encouraged to build structured partnerships with families, such as joint orientation forums that strengthen trust, transparency, and shared responsibility for student welfare (Khumaeroh et al., 2025). Effective collaboration should include psychoeducation on attachment, parent–child communication, balanced digital supervision, and risk factors such as family conflict and emotional neglect that increase cyberbullying vulnerability (Astuti & Astuti, 2020). Bullying contradicts Pancasila values and requires coordinated prevention through education, enforcement, and victim support to create safe learning environments (Qodri et al., 2024).

The synthesis of community interventions shows strong evidence that multi-stakeholder collaboration reduces monitoring gaps beyond school hours. However, implementation is constrained by scheduling constraints, generational gaps in digital literacy, and tensions between supervision and adolescent autonomy. Within Ribble's stakeholder framework, these efforts focus on Digital Health & Wellness, linking school orientation programs with parent–child communication training to strengthen shared responsibility for digital safety.

The Integrated Digital Citizenship-Based Cyberbullying Prevention Model positions curriculum integration, digital reporting systems, and parental collaboration as interconnected components of a single protective ecosystem. Digital ethics in the curriculum serves as a normative foundation that shapes students' moral awareness. This is reinforced by institutional reporting systems that ensure accountability through anonymous 24/7 mechanisms. Family engagement extends protection beyond school boundaries, closing monitoring gaps during out-of-school hours.

Despite its strengths, the model faces practical limitations. Digital citizenship programs cannot replace legal sanctions or psychological interventions for severe cases. Schools also face structural barriers such as limited budgets and rigid administration systems. Teacher digital competence gaps further reduce effectiveness, while students may treat safety programs as formal requirements rather than internal values. Rapid technological change, especially AI-

driven tools like deepfakes, introduces new forms of anonymous harassment that bypass traditional monitoring systems. These challenges highlight the need to view digital citizenship as a realistic, adaptive governance strategy rather than an idealized solution.

Conclusion

A safe digital school requires a holistic, systemic approach to cyberbullying prevention through responsible digital citizenship, implemented via three key strategies: (1) Curriculum Integration in School: Anti-cyberbullying education should be embedded within Digital Citizenship and Pancasila Education as part of character development in the digital era. This can be implemented through Project-Based Learning and supported by continuous teacher training to build ethical, safe, and inclusive digital cultures in schools. (2) Digital-Based Student Reporting System: An anonymous, 24/7 reporting platform enables early detection and prevention of cyberbullying incidents while protecting student identity. Its effectiveness depends on institutional commitment, transparent procedures, and continuous evaluation to ensure trust and responsiveness. (3) Integrated Socialization Involving Parents and Students: Since cyberbullying often occurs outside school, prevention must extend to the home through strong school–parent collaboration. Workshops can equip parents to serve as digital mentors who recognize risks, support children, and reinforce safe online behavior. These three strategies form an integrated ecosystem that connects curriculum, technology, and community, making digital safety a shared responsibility among stakeholders.

For policymakers, national curriculum guidelines should mandate the integration of digital citizenship into Pancasila and Civics Education, with corresponding funding and monitoring systems. For schools, comprehensive prevention programs must include reporting systems, teacher training, and collaboration with parents and communities. Teacher education institutions should integrate digital citizenship competencies and practical cyberbullying intervention skills into training programs. Parents are encouraged to strengthen their digital literacy and actively collaborate with schools to guide children's online behavior. Future research should evaluate the long-term effectiveness of interventions and explore AI-based systems for early detection of cyberbullying. Successful implementation requires sustained collaboration, evaluation, and ethical commitment to ensure safe digital education environments.

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