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A framework for generative AI policy and guidelines in K-12 education

Helen Crompton[a], Diane Burke[a], Aras Bozkurt[b], Christine Nickel[a], Fengchun Miao[c], Mark Pegrum[d], John Curry[e], David Parsons[f], Adam Edmett[g], LeeAnn Lindsey[h], Manuel B. Garcia[i], Agnes Chigona[j], Curtis J. Bonk[k], Francisco Bellas[l], Mourad Benali[m], Pat Yongpradit[n], Agnieszka Palalas[o], Andreia de Bem Machado[p], Hasan Tinmaz[q], Jinhee Kim[a], Johanna Velander[r], Junhong Xiao[s], Lenandlar Singh[t], Mohan Yang[u], Mohd Ali Bin Samsudin[v] and Sean Yu[w]

[a]Old Dominion University, Norfolk, VA, USA; [b]Anadolu University, Eskişehir, Türkiye; [c]UNESCO, Paris, France; [d]University of Western Australia, Perth, Western Australia, Australia; [e]Idaho State University, Pocatello, ID, USA; [f]academyEX, Grafton, Auckland, New Zealand; [g]British Council, Doha, Qatar; [h]Northern Arizona University, Flagstaff, AZ, USA; [i]FEU Institute of Technology, Sampaloc, Manila, Philippines; [j]Cape Peninsula University of Technology, Cape Town, South Africa; [k]Indiana University, Bloomington, IN, USA; [l]Universidade da Coruña, A Coruña, Galicia, Spain; [m]Regional Center for Education and Training Professions in the Oriental Region, Oujda, Morocco; [n]Code.org, Seattle, WA, USA; [o]Athabasca University, Athabasca, Alberta, Canada; [p]Federal University of Santa Catarina, Florianópolis, Santa Catarina, Brazil; [q]Woosong University, Daejeon, South Korea; [r]Linnaeus University, Växjö, Sweden; [s]Open University of Shantou, Shantou, Guangdong Province, China; [t]University of Guyana, Turkeyen, Greater Georgetown, Guyana; [u]Texas A&M University, College Station, TX, USA; [v]Universiti Sains Malaysia, Minden, Gelugor, Penang Island, Malaysia; [w]Independent Researcher, Taipei, Taipei City, Taiwan

ABSTRACT

The rapid emergence of generative artificial intelligence (GenAI) has introduced both opportunities and challenges for education systems worldwide. Educational stakeholders are grappling with fundamental questions of how to guide students on whether and when, and in what ways, they should use GenAI. In this study, a framework was developed to guide K–12 policies and guidelines on the use of GenAI. Using the Delphi technique and collective writing, expert perspectives were gathered from participants across 20 countries and six continents. The analysis identified eight key topic areas for K–12 GenAI policy and guideline development: (1) data privacy and security, (2) ethical and responsible use, (3) equitable access, (4) academic integrity, (5) human oversight, (6) GenAI literacy, (7) curriculum integration, and (8) governance and review. A complementary six-part framework was also constructed to support policy relevance and currency through multi-stakeholder governance, continuous review, ongoing training, awareness of external developments, outcome monitoring, and transparent communication. Together, these frameworks advance the scholarly and practical understanding of how GenAI policies can be designed and maintained in schools.

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Introduction

The rapid emergence of generative artificial intelligence (GenAI) has introduced both opportunities and challenges for education systems worldwide. GenAI tools like ChatGPT, Gemini, Claude and their underlying large language models (LLMs) have become widely accessible, capable of

CONTACT Helen Crompton crompton@odu.edu Old Dominion University, 145 Education Building, Norfolk, Virginia 23529, USA.

producing human-like text (Donely, 2024), solving problems (Küchemann et al., 2023), and generating creative content (Bitzenbauer, 2023). In K–12 (ages 5–18) schools, these technologies hold potential to enhance learning through individualized tutoring (Alneyadi & Wardat, 2023), creative exploration (Mogavi et al., 2023; Murgia et al., 2023), and efficient feedback (Capdehourat et al., 2024; Henkel et al., 2024).

However, GenAI raises serious concerns regarding academic integrity (Wan et al., 2025), data privacy (Senechal et al., 2023), equity (Tao et al., 2026), and the preparedness of educators and students to use GenAI responsibly (Kim, 2025). Educational stakeholders are grappling with fundamental questions of how to guide students on whether and when, and in what ways, they should use GenAI. As of 2024, few K-12 school systems have established comprehensive policies for GenAI use in education, leaving educators to navigate these challenges independently (Ghimire & Edwards, 2024, Hidalgo & Halim, 2025). Scholars (viz., Eutsler et al., 2025, Passey et al., 2024; Roe et al., 2024) call for a set of policies and guidelines for K-12 schools to have collective understandings of how to navigate this new GenAI age. Therefore, this study answers that call by exploring and developing, through collective understanding and expert consensus, a framework for K-12 institutions to manage GenAI use, specifically exploring the optimal combination of formal policies and flexible guidelines, the core content areas they should cover, and the processes needed for ongoing policy relevance.

Background

The extant literature reveals a push toward context-sensitive governance that aligns integrity, equity, privacy, GenAI literacy, and sustained human oversight with learning aims (Moorhouse et al., 2023; UNESCO, 2023). At the same time, reviews highlight limited consensus about scope and mechanisms, including whether institutions should privilege formal policy, flexible guidelines, or iteratively updated hybrids (Robert & McCormack, 2024). Against this backdrop, the subsequent discussion synthesizes definitions, contrasts policy and guidance, and surveys existing institutional and international frameworks to surface shared principles and unresolved tensions that inform the present study.

Defining GenAI

Generative Artificial Intelligence (GenAI) refers to a class of artificial intelligence models capable of producing new, or at least newly remixed, content, such as text, images, audio, code, or video, by learning patterns from existing data (He et al., 2025). Unlike traditional AI systems that are primarily discriminative or analytical, GenAI models are generative, meaning they create novel outputs that resemble the data on which they were trained. These systems are commonly built on large-scale machine learning architectures, such as LLMs (Storey et al., 2025). Some examples include text-based systems such as ChatGPT by OpenAI and Gemini by Google, multimodal systems such as Claude by Anthropic, and image and audio generation tools such as DALL.E. and Suno. GenAI has broad implications for K-12 education as its outputs often resemble human-generated content, raising new opportunities and challenges in creativity, authenticity, authorship, and ethics (Senechal et al., 2023).

The need for policies and guidelines

Early responses to the use of GenAI in classrooms have varied. Some school systems initially reacted by banning student use of GenAI due to fears of plagiarism and loss of learning rigor (Herold, 2023). At the same time, other educators argued that outright bans are ineffective and that students should be taught to use GenAI ethically and effectively as a future ready competency (Chan, 2025). This tension highlights a pressing need for clear policies or guidelines in

K–12 education regarding GenAI usage. Currently, most K–12 teachers report a lack of formal guidance from their schools or systems on how to handle GenAI in the classroom (Kaufman et al., 2025). The absence of guidance can create uncertainty and inconsistency, while also exacerbating risks, such as some educators permissively allowing GenAI-generated student work, while others penalize it, leading to confusion and fairness issues. Earlier research has demonstrated that the presence of clear policies and guidelines helps create the structures and expectations needed for safe and effective technology integration in K–12 settings (Consortium for School Networking, 2022, Sauers and Richardson, 2019). This previous research supports the potential impact that similar policies and guidelines for the use of GenAI can have.

Scholars caution that the integration of new technologies must be situated within broader institutional frameworks. Marzano (2025) emphasizes that effective adoption of GenAI requires alignment with existing institutional structures, pedagogical practices, and socioeconomic conditions. The history of educational technologies integration demonstrates that technological progress does not automatically yield educational improvement, but instead reshapes teaching approaches, sometimes displacing established and effective practices (Luo et al., 2024; Msafiri et al., 2023; Pegrum, 2019). Research consistently demonstrates that technological innovation alone does not produce educational improvement; rather, outcomes depend on the institutional conditions surrounding implementation. Studies of educational technology integration emphasize that effective use is shaped by systemic factors such as leadership, policy structures, strategic planning, and organizational capacity (Sosa-Díaz et al., 2022). Framework-based approaches further highlight that technology integration operates within a broader socio-ecological system in which institutional supports and governance mechanisms influence how tools are used in practice (Azadeh, 2017). Evidence from broader digital education research also suggests that large-scale investments in technology do not reliably improve learning outcomes without deliberate attention to enabling conditions and systemic support (Gaol & Prasolova-Førland, 2022). Collectively, this body of research indicates that institutional frameworks function as mediating structures, translating technological innovation into intentional, equitable, and pedagogically aligned educational practice. Without these institutional frameworks in place, GenAI potentially risks replicating these patterns by prioritizing efficiency over deeper learning and critical skills development. The Socio-Ecological Technology Integration (SETI) framework (Crompton et al., 2024) highlights this point by identifying policies as an essential condition for responsible and effective technology integration. SETI stresses that educators cannot fully integrate digital tools without supportive policies that provide shared expectations and ethical standards. Within each system surrounding the educator, there is the immediate school (Microsystem), then the wider school system (Exosystem), then the wider national system (Macrosystem). The Mesosystem with the arrows reminds us that an item in one system can also be found in the other systems (See Figure 1). e.g. while there are policies in the Exosystem, there will most likely be policies in the Micro and Macrosystem as well and importantly, these policies need to align. Policy operates across interconnected layers of the SETI framework, from the micro level of the individual school to the meso level of the school system and the macro level of national governance. Although policies may be authored within a single layer, they do not function in isolation. School-based policy development should therefore be informed by, and aligned with, existing district and national frameworks to ensure coherence, legal compliance, and strategic consistency. Without such vertical alignment, fragmentation and conflicting guidance can undermine effective implementation.

Policies are not peripheral to technology use but a foundation that enables equitable, transparent, and pedagogically aligned integration. Within this socio-ecological perspective, policies must work in concert with other aspects, such as training to use the technologies, technology support to troubleshoot issues, internet connectivity, and recognition of social and cultural technology norms.

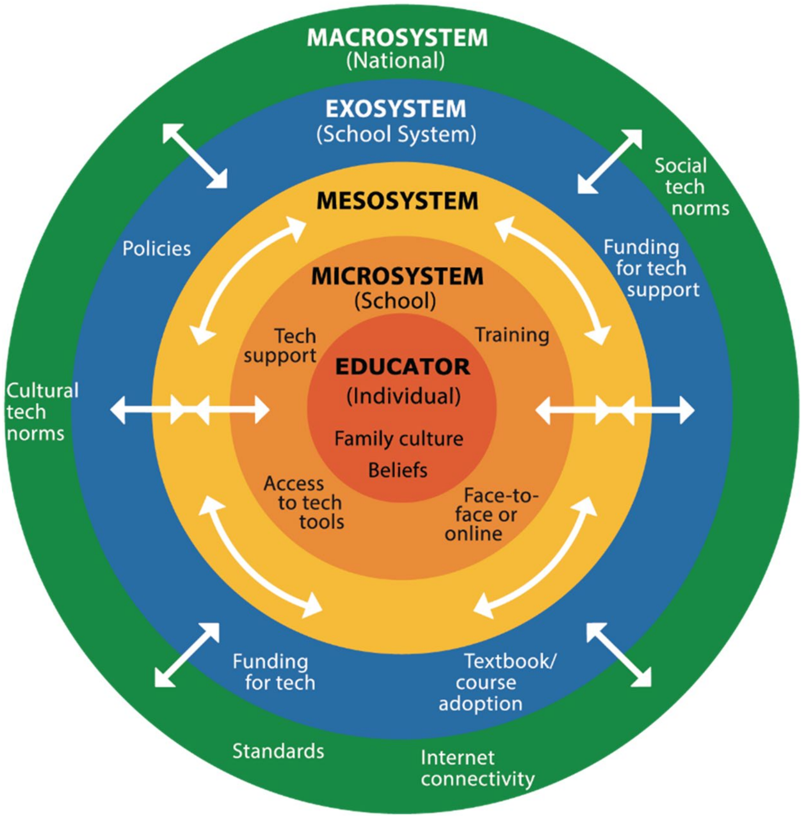

Figure 1. Socio-ecological technology integration framework (Crompton et al., 2024).

Policies and/or guidelines

For this study, policies in K–12 schools are defined as formal, authoritative statements that set clear rules, responsibilities, and procedures for students, teachers, and administrators. They are approved at the school leadership level and are enforceable across the system to ensure compliance with legal and child-protection standards. Guidelines are advisory statements designed to help educators and students interpret and apply policies in the classroom. While policies create consistent expectations for student behavior and teacher and administrator practice, guidelines provide flexible, age-appropriate recommendations that can be adapted to specific grade levels or school contexts.

Discussion is growing around whether schools should adopt formal policies, which carry an imperative, enforceable tone, or softer guidelines, which carry a more optional approach for GenAI (Ghimire & Edwards, 2024). A policy might mandate that students should not submit GenAI-generated content as original work, with specified consequences for violations. A guideline, in contrast, might recommend ways teachers can incorporate GenAI into assignments or advise students on acceptable vs. unacceptable uses, without the weight of disciplinary action for noncompliance. Each approach has merits. Clear policies can ensure consistency and accountability, whereas guidelines can be more easily updated and adapted to context. The literature on technology integration suggests that overly rigid policies can sometimes stifle innovation and teacher autonomy (Chiu et al., 2024). However, a lack of clear rules could lead to ethical lapses and unequal practices (Fenu et al., 2022). In addition, teachers need professional development to understand how best to utilize and enforce policies and guidelines (Huang et al., 2024). As policies and guidelines each have a role to play, a combination of each should be considered as a possible option.

Extant policies and guidelines

At the global level, UNESCO has provided general guidance emphasizing a human-centered approach, recommending ethical safeguards, data privacy, and appropriate pedagogical integration of GenAI in educational systems (UNESCO, 2023). In addition, UNESCO developed the AI Competency Framework for Teachers (2025a) and Students (2025b). Some countries have begun the process of developing policies and guidelines, e.g. Australia (Australian Government Department of Education, 2024; NSW Department of Education, 2023), Japan (Kaneko, 2023), Korea (Korea Ministry of Education, 2023), and the United Kingdom (Department for Education, 2023). Countries have adopted different approaches to determining how decisions regarding K-12 GenAI use are made. In the United States, the Department of Education released an AI Toolkit for district leaders to consider compliance with federal laws as they developed policies and guidelines (U.S. Department of Education, Office of Educational Technology, 2024). However, policies are primarily established at the state and local district levels (DiPaola et al., 2024). In contrast, countries such as Australia and the United Kingdom set national principles but leave specific decisions to individual schools, while New Zealand simply offers guidance to schools to develop their own policies. Meanwhile, nations, including Japan, issue direct regulations at the national level to direct student behavior.

Despite these variations, many policymakers and researchers agree that both clear policies and guidelines are essential for K–12 students' use, given the significant ethical, privacy, and equity challenges associated with these technologies (Akgun & Greenhow, 2022; García-López & Trujillo-Liñán, 2025). In addition, researchers call for a strong emphasis on providing comprehensive training for both teachers and students on the appropriate use of GenAI, ensuring clarity on when and how these technologies should be employed (Funa & Gabay, 2025).

Purpose

The purpose of this study is in response to the appeal from scholars (viz., Eutsler et al., 2025, Passey et al., 2024; Roe et al., 2024) to conduct research to determine appropriate global policies and/or guidelines for K–12 use of GenAI by leveraging expert consensus. While AI tools have been used in specific contexts in K12 education for at least a decade (Yim & Su, 2024), the rapid spread of a GenAI technologies raise new ethical challenges in the K12 context (Gouseti et al., 2025). Given that use of AI in K12 education is likely to increase as it pervades the digital ecosystem, often stealthily, schools and teachers will need support in addressing its implications. In this study, the term K-12 is used as it is a term familiar to educators globally. It is not to connote that this study is only focused on policies and guidelines for the USA. The findings of this study are to be used globally while also taking into account contextual nuances.

The overarching question guiding this study is: What policies and/or guidelines should be developed in K–12 education to ensure the responsible and effective use of generative AI (GenAI) in learning experiences? To address this broader question, the study explores three sub-questions. The first sub-question examines the appropriate form that governance should take, focusing on whether schools should rely on formal policies, flexible guidelines, or a combination of both. The second sub-question considers the substance of these policies or guidelines, identifying the key issues they should address and why those issues matter. The third sub-question looks beyond initial development to sustainability, asking how policies or guidelines can remain current as GenAI technologies and their educational applications continue to evolve.

1. When establishing direction for GenAI implementation in K–12 education, which approach is more suitable: formal policies, flexible guidelines, or a combination of both?
2. If guidance structures are put in place for K–12 GenAI implementation, what core topics should they encompass?

3. If policies or guidelines are established, what processes could help ensure they remain current as GenAI technologies and uses evolve?

Method

This study drew on the principles of the Delphi technique (Powell, 2003) and collective writing (Bozkurt et al., 2024). The primary goal was the development of consensus amongst the experts defined here as subject-matter experts or other important stakeholders within the discipline (Loo, 2002). The Delphi technique is frequently applied in educational contexts (Wang, et al., 2022) and is used to gather systematic and unbiased data from expert sources, overcoming individual biases by gaining the intuitive insights of experts through a sequence of individual interrogations (Helmer, 1972). The technique has three features: (1) the opinions of the Delphi panel are gathered anonymously, (2) interaction is managed by a systematic set of iterations, with carefully controlled feedback between rounds, and (3) the opinion of the group is an appropriate aggregate of individual opinions in the final round (Dalkey & Rourke, 1971).

Although the basic concepts of the Delphi approach have remained largely consistent over time, new methodologies and technology have impacted the communication channels used for these studies and offer new ways of collaborative consensus-building. The Delphi method is well poised for exploratory studies to gather consensus and adapted to best meet that need (Popov et al., 2020). Taking advantage of these opportunities, this study builds on a Delphi technique to include grounded coding (Strauss & Corbin, 1995) to qualitatively analyze the survey findings between surveys. Technology is then used in the final phase to engage the panel in collective writing. This provided an additional round of expert review, enabling the panel to engage with the final product of the study. While the final part of the panel process was not fully anonymous, similar adaptations of the Delphi methodology are not unusual (Hasson et al., 2025).

In the first phase of the study, elements of the Delphi technique were used to systematically elicit, compare, and refine expert perspectives related to policies and guidelines for K–12 use of generative artificial intelligence. The participants remained anonymous during this initial stage. The outcomes of this iterative expert consultation then informed a subsequent collective writing phase, during which participants collaboratively interpreted and synthesized the findings. Collective writing extends beyond collaborative drafting; it represents a shared intellectual process. It is an interactive, iterative, and relational practice through which participants jointly construct knowledge through dialogue and engagement (Bozkurt et al., 2020). This phase emphasized shared meaning-making and the integration of multiple perspectives, resulting in a coherent account that reflects both convergence and diversity in expert views.

Participants

A purposive sampling strategy was used to identify and recruit a panel of international experts for this study. Experts were selected based on predefined inclusion criteria to ensure a high level of expertise and relevance to the study objectives. Inclusion criteria required that candidates had expertise in K-12 educational technology and AI, as evidenced by their professional experience in K-12 or HE settings, their scholarly contributions, and/or their leadership roles in relevant professional organizations. A total of 35 experts were initially invited to participate. Ultimately, 24 experts (69%) agreed to participate in the study and were involved in all three phases of the study. These participants represented 20 countries/locations and six continents (See Figure 2). To ensure representation from low-income contexts, three panelists affiliated with multilateral organizations serving low-income countries were included. The final panel included K-12 education technology academics (16), leadership from multilateral education organizations (3), and chief academic officers/directors of K-12 education technology organizations (5). The 24 participants were all involved throughout the study. This purposeful approach ensured

Figure 2. Participants' geographical locations.

diversity across geographics regions, economic contexts and professional roles thereby strengthening the validity and transferability of the findings.

Data collection procedures

There are three phases of data collection. Phase 1 and Phase 2 used a type of Delphi approach with grounded coding (Strauss & Corbin, 1995), and then a collective writing approach was used in Phase 3. The Delphi approach was used to gather expert information on policies and guidelines for K-12 from a large group. This method aggregated expert insights to develop an understanding that is more accurate and reliable than isolated individual opinions (Rowe & Wright, 2001). Following the Delphi approach, the participants anonymity was only removed in the final Phase 3 of the collective writing. In Phase 1, participants responded to a semi-structured, open-ended questionnaire designed to elicit their views on the necessity, scope, and implementation of K–12 GenAI policies and guidelines. Specifically, if K-12 schools should have policies and/or guidelines, what should be included in policies and/or guidelines and why, and what actions are needed to keep them updated. In Phase 2, a synthesis of themes from Phase 1 was shared with the panel, and participants were invited to provide refinements and additional commentary. In Phase 3, panelists reviewed a consolidated summary of findings to confirm resonance and accuracy, with the study transitioning into a collective writing phase. Participants contributed collaboratively to the co-construction of the manuscript through iterative exchanges and joint drafting. This process allowed the integration of multiple perspectives and fostered a shared articulation of the study's insights.

Data analysis

Data from Phase 1 and 2 were analyzed between the surveys using grounded coding and the constant comparative method to identify recurring concepts and emergent categories. In addition to the grounded coding, "*In vivo*" (Saldana, 2015) coding was also used, which involves using language from the original participant text responses. Using the participants' language supports consistency with their original meaning. The constant comparative method involved three researchers examining the responses and coding text segments from those responses. As the coding process continued, trends were found in similar codes across responses. Codes were deemed theoretically saturated when all the data on policies/guidelines fitted with a code. These categories formed the basis of the synthesized themes presented in Phase 2. The expert panel reviewed the themes gathered from the grounded coding and provided qualitative feedback perceived changes needed to the themes. Those changes were again subjected to grounded coding to then revise the findings in Phase 3.

In Phase 3, the collective writing phase served as both an analytic and a synthetic process. By coauthoring and revising the text, participants collectively interpreted the findings, expanded upon their implications, and produced a final narrative that integrated expert consensus with pluralistic interpretation (Jandrić et al., 2022). This approach amplified methodological rigor by combining structured consensus-building with dialogic knowledge creation (Acar et al., 2024). Previous scholarship has demonstrated the effectiveness of collective writing as a research methodology across various contexts, including peer-feedback practices (Cahusac de Caux & Pretorius, 2024), collaborative writing in second-language learning (Lu & Kim, 2021), global educational responses to the COVID-19 pandemic (Bozkurt et al., 2020), and policy-oriented discourse on emerging technologies such as GenAI (Bozkurt, 2024).

Findings and discussion

The findings and discussion section are organized by the three questions guiding this study.

> RQ1: When establishing direction for GenAI implementation in K–12 education, which approach is more suitable: formal policies, flexible guidelines, or a combination of both?

The majority of panelists (89%) indicated the most effective way to implement GenAI in K–12 education is through a combination of formal policies and flexible guidelines, rather than prioritizing one approach over the other. Only three (9%) argued for relying solely on strict policies, and just one (3%) favored using guidelines alone. This near-unanimous consensus suggests that the panelists see policies and guidelines as fulfilling complementary roles in governance. As one explained, "*Policies are important to set clear boundaries in areas where a consensus on acceptable practice is, or is becoming, well established; guidelines offer important advice in areas where there is more freedom of choice*." This comment illustrates the prevailing view that enforceable rules are needed for certain high-stakes issues to ensure consistency and accountability, while advisory guidelines are better suited for areas requiring flexibility, innovation, and professional judgment in day-to-day practice.

The rationale for this dual approach aligns with research literature. Panelists emphasized that formal policies would set firm boundaries and "non-negotiable" expectations, thereby ensuring clarity and accountability. This reflects concerns in prior research that a lack of clear rules can lead to ethical lapses or unequal practices (Fenu et al., 2022). At the same time, the panelists were aware of the need for adaptability. They stated that flexible guidelines allow for updates as technology evolves and can be tailored to different classroom contexts. This echoes warnings from scholars that overly rigid rules may stifle teacher autonomy and innovation in technology integration (Dieudé & Prøitz, 2024). By advocating a mix of both policies and guidelines, panelists aimed to capture the benefits of clear, enforceable standards without sacrificing the nuanced guidance educators need when applying GenAI in diverse situations. This finding is consistent with the consensus of other education stakeholders that a robust GenAI strategy requires both well-defined rules and supportive best-practice recommendations (Australian Government Department of Education, 2024; McNulty et al., 2025, Digital Education Council, 2025, García-López & Trujillo-Liñán, 2025, Nguyen, 2025, Ruiz, et al., 2022, UNESCO, 2023).

Despite the overwhelming agreement on a blended strategy, a few panelists took divergent positions, highlighting the nuance in this debate. A small minority advocated exclusively for formal policies, contending that only official, enforceable rules from authorities would provide the necessary protection and consistency. One argued that GenAI use should be *"established at the regional or national level,"* favoring uniform policy mandates to ensure all schools adhere to the same standards. In contrast, one panelist took the opposite stance, opposing formal policies altogether on the grounds that any static rule could quickly become obsolete. This panelist cautioned that *"GenAI is "changing too rapidly" for a "blanket policy" to remain current. By the time a formal policy was approved, it would likely be "out of date," and thus, "guidelines are the way to go here."* These outlier perspectives underscore an inherent tension between the desire for stable, authoritative rules and the need for agility in the face of fast-evolving technology.

It appears that the data show that a dual framework of policies and guidelines is the favored approach, leveraging the strengths of strict policies for what must be consistent and safe, and the strengths of agile guidelines for what must be adaptable and continually learned. This follows a pattern found in previous educational technology policies. International examples demonstrate that effective educational technology policy typically combines formal national frameworks with flexible local implementation, periodic review cycles, and integration with broader data protection and digital literacy standards (e.g. European Commission, 2021, Finnish Ministry of Education and Culture, 2023; Ministry of Education, Singapore, 2020).

RQ2: If guidance structures are put in place for K–12 GenAI implementation, what core topics should they encompass?

Using the grounded coding approach, eight thematic areas emerged for K–12 GenAI policies and guidelines for student use. The eight consensus themes that emerged were: data privacy & security, ethical use, equitable access, academic integrity, human oversight, GenAI literacy, curriculum integration, and governance and review (see Figure 3). For each of the thematic areas, specific components of policy and related guidelines are provided in Table 1

These eight areas provide a springboard to support teachers, administrators, educational leaders, policy makers, and funders with a framework for integrating GenAI into K-12 education. These are unpacked further by theme.

Data privacy & security

Data privacy and security emerged as a top concern. Panelists stressed that GenAI technologies handling student data must comply with child privacy laws and safeguard sensitive information. One stated the need for *"protecting student data from unauthorized access and ensuring compliance with privacy laws like COPPA and FERPA."* These would need to match the country of use. Several panelists emphasized strict limits on data collection and use. Policies should mandate adherence to regulations (e.g. GDPR domestically or internationally) and require obtaining parental consent before sharing minors' data. Guidelines could include providing handbooks for

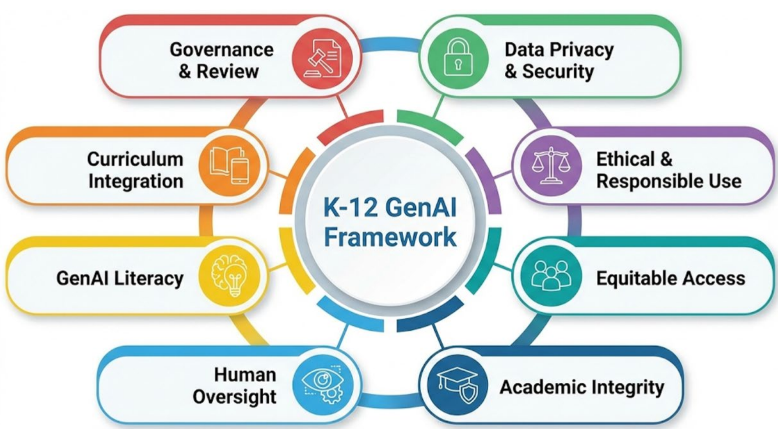

Figure 3. Visual framework for GenAI Policy and Guidelines in K-12 Education.

Table 1. Framework for K-12 GenAI Policies and Guidelines.

Thematic Areas	Policy Elements	Guideline Elements
Data Privacy & Security	Mandate compliance with applicable international and national data protection regulations. Limit data collection by GenAI systems to what is strictly necessary. Obtain verifiable consent from parents, guardians, or legal representatives before sharing minors' data.	Provide clear guidelines on student data collection, storage, and usage. Offer handbooks for parents/students on GenAI data handling practices. Train students on privacy-conscious behavior when using GenAI.
Ethical and Responsible Use	Require regular auditing of GenAI platforms for bias. Restrict GenAI-driven surveillance of students. Mandate GenAI transparency in any instructional application.	Provide practical examples and specific guidelines for ethical use. Provide classroom materials on ethical GenAI use that fairness and bias. Discuss Gen AI's limitations and biases to reduce harm of misinformation.
Equitable Access	Aim for equitable access to GenAI technologies across student populations. Allocate resources to under-resourced schools. Avoid GenAI deployments that reinforce digital divides.	Provide learners with access to the necessary devices and technologies. Consider learner diversity and accessibility issues to ensure that all learners have access and opportunity. Offer inclusive GenAI integration strategies. Support students in developing GenAI literacy.
Academic Integrity	Define academic integrity involving the use of GenAI. Define appropriate and prohibited uses of GenAI for students. Define disciplinary consequences.	Create Q&A guides for GenAI use. Provide suitable specific age, subject, and skill guidelines. Clarify acceptable GenAI use in assignments and assessments.
Human Oversight	Ensure that educators review all GenAI-generated outputs that affect student learning or assessment. Clearly define who is responsible for decisions involving the use of GenAI in the classroom. Mandate documentation of GenAI use in school processes.	Review GenAI technologies before deployment. Encourage critical evaluation of GenAI-generated content.
GenAI Literacy	Identify and Integrate age and contextually appropriate GenAI literacy into student curricula. Set GenAI competency benchmarks for students.	Identify and teach the knowledge, skills and dispositions students need to understand GenAI, how it works, its impact, and how to use it responsibly. Guide students on when and how to use GenAI as a support technology rather than a replacement for thinking and creativity.
Curriculum Integration	Ensure GenAI supports rather than replaces learning. Require GenAI instructional applications to align with standards and approved learning outcomes. Promote innovation aligned with pedagogy.	Provide clear instructions on how students can use GenAI in each class. Consider the suitability of GenAI technologies for students of a particular age range, educational level, and academic subject.
Governance & Review	Establish GenAI oversight committees. Require regular policy reviews and updates. Define reporting mechanisms. Ensure public access to updated policies and guidelines.	Invite all stakeholders (students, teachers, parents) to have a voice in governance and review of GenAI policies and guidelines.

parents/students on GenAI and training students on privacy-conscious behavior when using GenAI. The prominence of this theme aligns with broader educational and policy discourse. Globally, authorities have cautioned that the rapid adoption of GenAI risks outpacing regulatory safeguards, leaving student data privacy unprotected (García-López & Trujillo-Liñán, 2025). UNESCO's (2023) guidance on GenAI in education calls for "mandating the protection of data privacy" as a key step in governance. Protecting minors' personal information is not only a legal obligation but foundational to maintaining trust in educational technology (Senechal et al., 2023). Any GenAI policy must set firm rules for data protection, while accompanying guidelines translate these into practice.

Ethical and responsible use

Ethical and responsible use of GenAI was identified as a core theme, encompassing issues of fairness, bias, transparency, and responsible application of GenAI. Panelists were clear that schools must set expectations for responsible and safe use of GenAI technologies and the choice of technologies. As one panelist urged, *"establish policies requiring ethical standards to ensure GenAI applications promote fairness and do not exploit or harm students."* This reflects a broad consensus that GenAI technologies should be subject to ethical guardrails. In the Delphi data, panelists frequently mentioned the need to be aware of *"inaccurate, unreliable or harmful outputs that could misinform or hurt students."* Panelists advocated developing classroom materials on GenAI ethics that cover topics like algorithmic bias, fairness, and GenAI's limitations.

The emphasis on ethical and responsible use is strongly mirrored in the literature. International frameworks stress a human-centered approach to educational GenAI, ensuring ethical, safe, equitable and meaningful use of GenAI (Miao & Holmes, 2023). UNESCO (2023, 2025a, 2025b) identifies a range of controversial ethical issues around GenAI in education and calls for explicit safeguards. The panelists' call to mandate GenAI transparency in any instructional use resonates with calls for algorithmic transparency in GenAI ethics literature (Bjelobaba et al., 2025).

Equitable access

The panelists strongly agreed that GenAI initiatives must address equitable access to both technologies and digital literacy to use those technologies. Panelists noted a risk that GenAI could deepen existing digital divides or forms of digital exclusion if not made available to all students. One panelist wrote that policies should "*address the digital divide by ensuring all students, including those from disadvantaged backgrounds, have access to GenAI tools*." This was echoed by many others, highlighting that access to hardware, the internet, and GenAI resources should be seen as a right, not a privilege, in K–12. A concomitant equity focus was on digital literacy in enabling all students to use the technologies. Panelists suggested policies should ideally require schools, as far as practical, to provide necessary devices or accounts and to address GenAI literacy so no subgroup is left behind. In addition, schools should create inclusive GenAI integration strategies and support students in developing GenAI literacy. There was also a preventative angle. Policies could limit GenAI deployments that may markedly reinforce existing inequities. One panelist suggested providing "*inclusive GenAI integration strategies*" so that GenAI can benefit all learners

This theme is underscored by current educational concerns that use of GenAI could unintentionally widen achievement gaps. Notably, UNESCO's (2023, 2025a, 2025b) global guidance on GenAI integrates the principle of equitable use as part of a human-centered approach. If GenAI technologies are only available to some students, or if some students have access to paid subscription versions while others are limited to free public versions, disparities will emerge. Researchers have warned that GenAI could create two classes of students, those with full access and those with little or no access, thus threatening to widen digital divides (DiPaola et al., 2024; Tao et al., 2026).

Academic integrity

Academic integrity and acceptable use in the age of GenAI was an important theme. Delphi panelists overwhelmingly agreed that schools need clear policies defining acceptable vs. unacceptable use of GenAI in coursework. One comment was, *"Academic integrity & GenAI-assisted work [policies should] prevent plagiarism and ensure students develop critical thinking skills. [They] should include clear rules on what constitutes acceptable vs. unacceptable use of GenAI in schoolwork."* Several panelists noted that without clarity, students are left in a grey area, which can lead to confusion and inconsistent enforcement. Panelists also highlighted positive uses. Policies should not only punish misuse but also encourage acceptable use. Many suggested developing guidelines as student-friendly documents to help learners understand why certain uses of GenAI constitute dishonesty and how to use GenAI in a transparent way. Age-appropriateness was mentioned. Guidelines might need to be tailored for elementary vs. secondary students in explaining plagiarism and academic integrity in the context of GenAI. Creating Q&A guides for GenAI use and clarifying acceptable GenAI use in assignments and assessments are possible avenues. The overall finding is that academic integrity must be proactively safeguarded through both rules and education.

This theme reflects one of the most immediate challenges schools have faced with GenAI's emergence. The literature notes a dichotomy in addressing GenAI-related cheating: legislate or educate? (Wan et al., 2025). Our findings suggest both are needed. Formally, policies define appropriate and prohibited uses of GenAI for students, and articulate consequences. This creates consistency and a deterrent against misuse. However, panelists and researchers alike caution that a punitive or fear-based approach alone may backfire. If students only hear about GenAI in terms of cheating, they may hide their use of it, missing opportunities to learn how to use it productively (Evangelista, 2025). Panelists called for moving beyond just the detection of GenAI-written work to foster transparency as well as student reflection on GenAI usage. Educators are beginning to ask how students should cite or communicate the ways they have used GenAI their work (Cotton et al., 2024). Thus, an important aspect of both policies and guidelines will be establishing norms for disclosure, e.g. requiring students to note GenAI assistance in assignments. Involving students in developing these policies and guidelines can increase buy-in (Parthasarathy et al., 2024).

Human oversight

The panelists emphasized that human oversight is vital whenever GenAI systems are used in K–12 settings. Even as GenAI technologies automate certain tasks, panelists agreed that educators must retain ultimate control and review. One recommended *"restricting independent use of GenAI for younger age groups"* to prevent misuse. Others noted that any GenAI-generated content or decision that could affect students should be reviewed by a teacher or administrator. By codifying human oversight, policies can ensure accountability. Specific policy ideas included requiring that a staff member review all GenAI outputs that go into student grading or feedback and clearly assigning responsibility for oversight and mandating documentation of GenAI use. In addition to focusing on staff review of GenAI output, panelists emphasized the need for guidelines on critical evaluation of GenAI outputs by students, who should come to see GenAI as a useful but fallible technology.

The insistence on human oversight reflects a widely endorsed principle in GenAI ethics and education research, that GenAI should augment, not replace, human decision-making (Luckin et al., 2023). UNESCO's (2023) GenAI education guidance explicitly recommends setting an age limit for independent GenAI conversations by students. Moreover, even for older students, human oversight ensures accountability. GenAI might provide a suggestion or score, but a human educator should make the final judgment. This resonates with emerging regulatory trends such as the EU's draft AI Act (EU AI Office, 2024) that mandate human oversight for high-stakes GenAI systems. Policies can enshrine the non-delegable responsibilities. Guidelines, in turn, provide day-to-day strategies. This theme is fundamentally about maintaining human agency and safeguarding educational values.

GenAI literacy

Both Delphi phases highlighted the importance of building GenAI literacy among students. This topic was highlighted in regard to equity, but also as a standalone theme addressing the need to develop students' knowledge, skills, and dispositions to use GenAI effectively. Panelists argued that any GenAI policy framework must include provisions for education and training about GenAI itself. One wrote that there *"should be a policy requiring the development of both teachers' and students' AI literacy."* Panelists suggested that policies could mandate the inclusion of age-appropriate GenAI literacy content and even set competency benchmarks. Many linked this to digital citizenship, seeing GenAI literacy as a new component of preparing students to navigate the digital world safely and effectively. One participant's guideline example encapsulates the goal: *"guide students on when and how to use GenAI as a support tool rather than a replacement for thinking and creativity."* This quote illustrates that GenAI literacy is not just about technical knowledge or skills but is also dispositional. Students should learn that GenAI can assist their learning but should not take over fundamental skill development or original thought. Guidelines suggest that schools identify and teach the knowledge, skills and dispositions students need to understand how GenAI works, its impact, and how to use it responsibly. In addition, schools should help students understand when and how to use GenAI as a support technology rather than a replacement for thinking and creativity. The expert panel saw GenAI literacy education as essential to any responsible rollout of GenAI in schools.

The call for GenAI literacy echoes a growing chorus of voices in educational research calling for students to be equipped to engage critically and creatively with GenAI. GenAI literacy is emerging as a crucial competence for the future-ready competencies (Greene & Crompton, 2025; Siemens & Baker, 2023). Educational leaders have started emphasizing teaching GenAI literacy and involving students in drafting GenAI guidelines as best practices, reflecting a shift from merely restricting GenAI to actively empowering students with knowledge (Zhang & Magerko, 2025). Embedding GenAI literacy in policies and guidelines ensures that, as GenAI becomes ubiquitous, K–12 learners are not passive consumers but competent, critical, and creative users of these technologies (TeachAI, 2025).

Curriculum integration

Curriculum integration concerns how GenAI technologies and practices should be woven (or not) into teaching and learning. Panelists were clear that GenAI use must *"support rather than replace learning,"* as also noted under the GenAI Literacy theme. There was agreement that policies should require any instructional GenAI application to align with established curriculum standards and learning outcomes. Panelists also advocated for innovation but aligned with pedagogy, encouraging schools to explore GenAI for customized learning or creative projects, yet ensuring these innovations do not bypass essential skills or educational standards. They stated that guidelines should offer teachers concrete strategies for implementing GenAI in their specific subjects by giving *"clear instructions on how students can use GenAI in each class."* Additionally, the notion of balance was stressed. GenAI should be introduced in measured ways that complement learning. Guidelines should provide clear instructions on how students can use GenAI in each class and consider the suitability of GenAI technologies for students of a particular age range, educational level, and academic subject.

This theme addresses the why and how of using GenAI in learning. The need for thoughtful integration arises from early polarizing reactions. Some schools reacted with outright bans on GenAI, whereas others embraced it without much guidance. Panelists argued that neither extreme is ideal. They noted that banning GenAI is shortsighted because it denies students the chance to learn GenAI-aided skills (Chan, 2025). On the other hand, unguided use can lead to overdependence on GenAI. Thus, our findings advocate a middle path. Integrate GenAI into the curriculum in a way that enhances learning and teaches new skills, but do so deliberately and with clear boundaries. The quote from a panelist to "*guide students on when and how to use GenAI as a support tool rather than a replacement for thinking and creativity*," already cited above, is particularly salient. It encapsulates a pedagogical principle echoed in the literature. UNESCO's (2023, 2025a, 2025b) guidance encourages exploring creative uses of GenAI in curriculum design, teaching, and learning, indicating that innovation is welcome if it is meaningful. Others stress appropriate pedagogical integration, warning against simply inserting GenAI without alignment to learning goals (Perkins et al., 2023).

Governance & review

Findings from the Delphi study highlight the importance of governance processes and continuous review for GenAI in K–12 education. Panelists widely recommended establishing formal oversight structures. For example, one participant suggested creating a GenAI oversight committee at the system or school level to guide implementation and monitor emerging issues. Panelists emphasized that GenAI policies should be living documents subject to regular revision, and that guidelines must not remain static. Instead, schools should conduct periodic reviews and update their practices accordingly. Involving diverse stakeholders in governance was also seen as critical. Panelists advocated for including teachers, administrators, educational leaders, parents, and students in reviewing GenAI use and in refining policies to ensure transparency and community buy-in.

Notably, these panelists' perspectives closely align with emerging recommendations in the literature on GenAI governance in education. Researchers have warned that GenAI's rapid adoption in schools is outpacing oversight (Ghimire & Edwards, 2024). Others stress that GenAI cannot be integrated without public engagement, necessary safeguards and regulations, and proactive oversight and transparency (Bjelobaba et al., 2025). Certain non-negotiables should be codified in official policy, while more adaptive elements can be addressed in guidelines. Effective GenAI governance in education, therefore, appears to require a structured policy framework combined with iterative review and inclusive engagement.

RQ3: If policies or guidelines are established, what processes could help ensure they remain current as GenAI technologies and uses evolve?

The grounded analysis of Delphi responses revealed six key mechanisms to ensure GenAI policies and guidelines remain current and relevant in K–12 settings (see Figure 4). These include establishing a multi-stakeholder governance structure, conducting regular reviews, providing ongoing training and support, staying informed externally, monitoring implementation outcomes, and communicating changes clearly. Table 2 provides further descriptive information on each mechanism.

Panelists argued that schools should establish a formal GenAI oversight committee to steer implementation and flag emerging issues. This multi-stakeholder group, ideally including administrators, teachers, educational leaders, IT staff, parents, caregivers, and students, would ensure transparency and community buy-in. This emphasis mirrors UNESCO's (2023, 2025a, 2025b) recommendation that GenAI governance be human-centered and multi-stakeholder, with diverse groups advising on policy updates. Formal governance bodies confer legitimacy and vigilance, helping policies adapt to new needs and perspectives.

Many panelists explicitly recommended periodic policy audits and revisions. This mechanism addresses the reality that GenAI evolves quickly, and is supported in the literature by Tang, et al. (2024), who warn that the spread of new GenAI applications can outpace static rules. By embedding review cycles into governance, schools ensure that safeguards and best practices stay current. Such continuous review also echoes Karran, et al.'s (2025) finding that responsible GenAI in education requires ongoing updates and stakeholder engagement.

Panelists highlighted that ongoing professional development and support are needed to ensure understanding and implementation of policies and guidelines. This capacity-building ensures

Figure 4. Mechanisms for policy maintenance.

teachers (and, through them, students) stay abreast of the latest GenAI technologies and practices, as reflected in revised policies (UNESCO, 2023, 2025a, 2025b). Similarly, this emphasizes this link, recommending continual teacher training alongside policy updates. In effect, embedding regular training helps the policy feedback loop. New technologies or issues identified through training can inform the next review cycle, keeping guidance relevant (Amemasor et al., 2025).

Additionally, panelists stressed the need to stay informed of external developments. Schools were advised to monitor developments in GenAI technology and legal requirements, updating policies in light of national/international guidelines or significant technological changes. This external scanning guards against obsolescence. If a new GenAI model appears or a national curriculum mandates changes, the school's policies can be updated in response. Panelists noted that this prevents local rules from "*falling behind the state of the art*." García-López and Trujillo-Liñán (2025) stress this principle that policy should align with evolving external standards, not lag behind them.

Another mechanism was monitoring the implementation outcomes of policies and guidelines. Panelists likened this to an implementable program that should be evaluated and improved over time. In practice, schools were urged to collect data on how GenAI is used in classrooms. By auditing how policies and guidelines work on the ground, leaders can identify gaps or unintended effects and update them accordingly. This outcome monitoring thus complements the formal review cycle. Without it, policy updates might miss practical problems or innovations arising in practice.

Table 2. Recommendations for keeping K-12 GenAI policies and guidelines current.

Mechanism	Description
Establish a multi-stakeholder GenAI governance structure	Include teachers, administrators, educational leaders, IT staff, students, parents, and community members. Task this committee with overseeing GenAI integration and updates to policies and guidelines. Solicit ongoing feedback from stakeholders and involve them in regular policy revisions.
Conduct regular reviews	Evaluate and revise GenAI policies and guidelines on a fixed schedule (e.g. 6 months or annually), while allowing interim updates as needed in response to new developments.
Provide ongoing training and support	Continuously educate and support teachers (and students) through professional development and resources aligned with the latest GenAI technologies and pedagogical and ethical best practices.
Stay informed externally	Monitor developments in GenAI technology, legal requirements, and educational best practices. Update local policies and guidelines by considering new national/international guidelines and significant technological changes.
Monitor implementation outcomes	Track how GenAI is being used in classrooms and any issues that arise (incidents, successes, challenges). Use this data to inform adjustments, treating the policies and guidelines as a program that is continually evaluated and improved.
Communicate changes clearly	When policies or guidelines are updated, clearly communicate the changes to all stakeholders (e.g. through staff meetings, parent forums, and/or short community videos) to ensure transparency and understanding.

Clear communication of updates was emphasized. Panelists cautioned that even the best revision is unhelpful if stakeholders remain unaware. When policies change, schools must clearly communicate them to all stakeholders and ensure understanding. One panelist advised briefings, workshops, or videos for staff, students, and parents. Transparent communication builds trust and compliance as rules evolve. Sigfrids, et al. (2022) similarly highlighted that responsible GenAI governance demands broad engagement and clear messaging. Overall, by combining formal oversight bodies, built-in review cycles, continuous training, data monitoring, environmental scanning, implementation monitoring, and proactive communication, K–12 systems can keep GenAI policies both rigorous and adaptable in step with a fast-changing GenAI landscape.

Limitations and future research

This study captures expert consensus but does not assess how policies and guidelines perform when applied in real-world school settings. In addition, while there were participants in the panel who worked in large multilateral organizations who highlighted low-income countries, the panelists largely reflect a bias of experience from high-income countries with high-performing education systems, so a more diverse panel may have been able to offer deeper insights into less privileged contexts. Future empirical implementation studies are needed to evaluate the practicality and effectiveness of policies and guidelines across diverse contexts. Given the pace of GenAI innovation, the policy landscape is highly fluid, and longitudinal research is necessary to understand how school systems adapt to evolving technologies over time. This study also does not directly reflect the perspectives of students, parents, and caregivers, the primary stakeholders affected by these policies. Future research could amplify these voices to capture lived experiences, concerns, and values. Finally, additional work must critically examine how GenAI policies intersect with issues of equity, particularly for all marginalized students, to determine whether these policies promote digital justice or reinforce systemic disparities.

Conclusion

This study is unique in that it answered the call from scholars (viz., Passey et al., 2024; Roe et al., 2024) to empirically develop a framework for K-12 policies and guidelines on GenAI. Furthermore, this framework was developed by a large team of panelists spanning 20 countries/locations to allow widespread use while offering the opportunity for customization to fit specific schools and contexts. Eight key topic areas were identified to form the foundation of any GenAI policy/guidelines framework: 1) data privacy and security, 2) ethical use and responsible use, 3) equitable access, 4) academic honesty, 5) human oversight and accountability, 6) GenAI literacy, 7) curriculum integration, and 8) governance and review.

As GenAI technologies become increasingly prevalent in K–12 education, institutions face the dual imperative of leveraging their educational potential while mitigating associated risks. This study also contributes to the emerging discourse on GenAI governance by identifying a clear consensus among experts that an effective strategy requires the integration of both formal policies and flexible guidelines. Policies provide necessary structure and accountability, particularly for issues such as data privacy, academic integrity, and human oversight. At the same time, guidelines offer adaptability and practical support, enabling educators to navigate the nuanced realities of GenAI integration in diverse classroom contexts. In addressing the final question in this study, a six-part framework is provided to ensure that policies remain current and relevant. Key elements include establishing a multi-stakeholder governance structure, conducting continuous policy reviews, providing ongoing training, staying informed of external developments, monitoring implementation outcomes, and communicating changes clearly.

By providing a robust, eight-part framework for policy and guidelines, alongside a six-part mechanism for perpetual review, this study offers educational leaders and policymakers a responsible, adaptable, and consensus-driven blueprint for navigating the integration of GenAI in K-12 education, ensuring that technological innovation serves pedagogical excellence.

Author agreement/declaration

This is a statement to certify that all authors have seen and approved the final version of the manuscript being submitted. This manuscript has not received prior publication and is not under consideration for publication elsewhere.

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ORCID

Helen Crompton http://orcid.org/0000-0002-1775-8219
Diane Burke http://orcid.org/0000-0002-8214-0386
Aras Bozkurt http://orcid.org/0000-0002-4520-642X
Christine Nickel http://orcid.org/0009-0009-6420-3716
Mark Pegrum http://orcid.org/0000-0003-1577-4642
John Curry http://orcid.org/0000-0001-6566-4930
David Parsons http://orcid.org/0000-0002-9815-036X
Manuel B. Garcia http://orcid.org/0000-0003-2615-422X
Agnes Chigona http://orcid.org/0000-0002-4293-8190
Curtis J. Bonk http://orcid.org/0000-0002-6365-9502
Francisco Bellas http://orcid.org/0000-0001-6043-1468
Mourad Benali http://orcid.org/0000-0003-3064-0757
Agnieszka Palalas http://orcid.org/0000-0001-9408-1152
Hasan Tinmaz http://orcid.org/0000-0003-4310-0848
Jinhee Kim http://orcid.org/0000-0002-3365-7354
Johanna Velander http://orcid.org/0000-0002-4144-6012
Junhong Xiao http://orcid.org/0000-0002-5316-2957
Lenandlar Singh http://orcid.org/0000-0002-8550-4237
Mohan Yang http://orcid.org/0000-0003-0856-0814
Mohd Ali Bin Samsudin http://orcid.org/0000-0001-8231-5775

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