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Practitioner Perspective

From ETHOS Policy to Praxis: A Professional Development Playbook for AI in the Middle Grades

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From ETHOS Policy to Praxis: A Professional Development Playbook for AI in the Middle Grades

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Abstract

Middle school teachers and leaders are navigating the growing influence of artificial intelligence (AI), a broad category of computer systems that perform tasks such as prediction, classification, recommendation, and content generation. This article focuses particularly on generative artificial intelligence (GenAI), systems such as Gemini, ChatGPT, and Claude that produce new text, images, audio, or other content in response to user input. GenAI is rapidly reshaping classroom environments, offering novel ways to support student inquiry, creativity, and writing while also raising questions about accuracy, privacy, bias, academic integrity, and student dependence. Early adolescents are undergoing rapid neurological growth and identity construction, meaning that a purely restrictive approach to GenAI misses a vital opportunity to foster critical thinking and self-regulation. To bridge the gap between high-level policy and daily classroom reality, this practitioner perspective introduces the ETHOS framework, which guides GenAI evaluation through five tenets: Ethical, Transparent, Human-centered, Opportunity-focused, and Safe. This playbook details how our district operationalized ETHOS into an actionable framework that shifts school cultures away from a list of compliance-based rules and toward a developmentally appropriate lens that begins with the learner, the intended learning, and the supports needed for growth. We outline a professional development sequence that uses thinking routines, ambiguous case studies, and disciplinary breakouts to build educator capacity. Crucially, we distinguish between GenAI-enhanced and GenAI-dependent learning and show how intentionally structured AI scaffolds may support productive struggle while keeping student thinking and agency at the center. Finally, we share honest implementation friction points and discuss how the framework remains adaptable for resource-constrained schools seeking digital equity. Ultimately, this perspective provides a ground-level roadmap for school leaders to move from abstract technology policy to responsive classroom praxis.

Middle school teachers and leaders are currently facing a daunting instructional paradox. On one hand, artificial intelligence (AI), and more specifically generative artificial intelligence (GenAI), is rapidly reshaping classroom environments, offering novel ways to support student inquiry, creativity, and writing. On the other hand, educators are being asked to navigate this technological tidal wave using broad, compliance-driven K–12 district policies that fail to account for the unique developmental realities of early adolescence. Middle grades education has long recognized that early adolescents are not simply smaller high school students. They are individuals navigating a formative period marked by rapid neurological growth, expanding independence, evolving executive functioning, and active identity construction (Bishop & Harrison, 2021; Schaefer et al., 2016). When a school's only response to AI is a static checklist or a restrictive plagiarism policy, it misses a crucial opportunity to shape how students reflect, think critically, and self-regulate. If we want young adolescents to engage with technology ethically, our instructional frameworks must look through a developmental lens rather than a lens focused on compliance.

To bridge the gap between high-level policy and daily classroom reality, our district developed and deployed the ETHOS framework. We, the

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authors, began crafting ETHOS in the fall of 2024. As members of our district's AI Lead Team from three different departments (Matt: Curriculum, Instruction, and Assessment; Courtney: Office of Professional Development; and Jason: District Technology Services), we recognized the need for structure and guidance relating to artificial intelligence, specifically the use of generative AI, in classrooms. The framework tasks users with critical reflection about using AI in ways that are ethical, transparent, human-centered, opportunity-focused, and safe. We believe that "by following these guiding principles, we can enhance learning, inspire innovation, and safeguard privacy while preparing students to thrive in an ever-changing, complex, and globalized society" (St. Vrain Valley Schools, 2026, para. 2).

- **Ethical:** Moving beyond simple academic integrity to help students critically evaluate the moral, bias, and societal implications of AI outputs.
- **Transparent:** Developing foundational AI literacy by teaching students to openly document their tool use and question machine accuracy.
- **Human-centered:** Prioritizing dialogue, advisory relationships, and collaborative critique to ensure technology enhances—rather than isolates—the social nature of learning.
- **Opportunity-focused:** Using AI purposefully to expand accessibility, provide scaffolds for diverse learners, and spark authentic creative exploration.
- **Safe:** Safeguarding students' emotional well-being, cognitive development, and data privacy under the active guidance of trusted adults.

ETHOS finds a home within the related traditions of media, digital, and artificial intelligence literacy. Wuyckens, Landry, and Fastrez (2022) caution that media, information, and digital literacy are overlapping but conceptually distinct fields, each concerned with the knowledge and abilities people need to engage critically with information, media, and digital technologies. AI literacy extends this work by addressing the particular ways algorithmic systems influence how information is produced, interpreted, and acted upon. The Organisation for Economic Co-operation and Development (OECD) and European Commission's AI Literacy Framework for Primary and Secondary Education organizes these capacities around engaging with, creating with, managing, and designing AI while emphasizing critical judgment, ethical awareness, and learner agency (OECD, 2026). ETHOS complements these frameworks by translating related literacy goals into a developmentally responsive decision-making lens for middle grades classrooms. Its five tenets prompt educators and students to examine not only whether an AI-supported activity is technically possible, but also whether it is ethical, transparent, human-centered, opportunity-focused, and safe. In this way, ETHOS does not replace existing literacy frameworks; rather, it provides a practical structure through which their critical, ethical, and participatory commitments can inform instructional decisions involving AI.

Crucially, this alignment extends beyond classroom management and enters the realm of democratic education, which prepares young people to participate thoughtfully in shared civic life, and to critical literacy, which equips them to examine how texts and technologies construct knowledge, authority, and power. The concepts are related but not interchangeable: democratic education identifies a participatory civic purpose (Apple & Beane, 2007), while critical literacy offers practices for questioning whose perspectives are represented, whose interests are served, and how claims acquire authority (Bishop, 2023). Luke (2026) makes the argument that critical literacy is an essential prerequisite for democratic education. He demonstrates that in media-saturated environments, critical literacy functions as a "new basic" requirement for civil discourse, ethical exchange, and active civic participation. Early adolescence is a foundational period for civic identity construction (Brinegar & Caskey, 2022). In AI-mediated environments, these commitments require students to question automated outputs, investigate bias and omission, seek transparency about how systems operate, and retain responsibility for their own judgments. ETHOS brings these commitments into classroom decision-making by asking whether an AI-supported activity advances ethical participation, critical inquiry, and learner agency. If we are to prepare young people to navigate a democratic society, they must be equipped with the critical literacy skills required to

question automated authority, demand systemic transparency, and maintain intellectual sovereignty over their own ideas. By viewing AI through a lens focused on developmental needs rather than one based on compliance, ETHOS explicitly nurtures the independent, reflective habits of mind required for active, informed digital citizenship.

Developmentally responsive middle grades education creates meaningful opportunities for students to exercise voice, make choices, reflect on consequences, and assume increasing responsibility for their learning (Bishop & Harrison, 2021). Accordingly, the question facing school leaders is no longer simply whether AI belongs in the building, but under what conditions its use creates opportunities to support rather than diminish young adolescents' agency, relationships, and intellectual development. This article offers ETHOS as an adaptable model rather than a universal rulebook. The framework reflects one district's context, values, and implementation experience; other schools and districts may use its five tenets as a starting point while adapting the language, examples, facilitation structures, and implementation pace to their communities. Our purpose is therefore not to prescribe a single AI policy, but to show how broad principles can be translated into developmentally responsive professional learning and classroom decision-making.

An ETHOS Playbook

The following playbook is written for the school or district leaders, instructional coaches, teacher leaders, and technology specialists who facilitate professional learning about AI. It describes a sequence we have used with participants: activate prior knowledge, examine ETHOS as a shared decision-making lens, analyze ambiguous cases, and apply the framework in subject- or context-specific breakouts. Facilitators may use the sequence in one extended session or distribute it across multiple meetings.

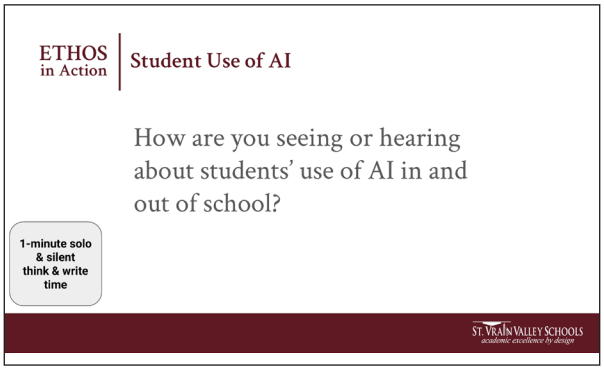
A central distinction throughout the playbook is whether an activity is GenAI-enhanced or GenAI-dependent. In GenAI-enhanced learning, the technology provides feedback, access, or scaffolding while students remain responsible for the core thinking and meaning-making. In GenAI-dependent learning, the technology performs the intellectual work the learning experience was designed to develop. This distinction shifts attention from whether a tool was used to what the learner did, understood, and could subsequently explain or perform independently.

In this playbook, participants are the educators taking part in professional learning, including classroom teachers and, where appropriate, instructional coaches, administrators, librarians, and technology specialists. We use facilitator for the person or team leading the session and students for the young adolescents represented in cases or classroom applications.

1. Activate Prior Knowledge

To anchor new learning in authentic classroom experiences (Darling-Hammond et al., 2017), we introduce a low-stakes prompt (see Figure 1) as an entry point.

Figure 1
Student use of AI Pre-writing Prompt



Participants spend one minute silently writing individual responses before engaging in conversation with colleagues. The goal is not to evaluate the accuracy of responses or debate the merits of AI. Instead, the activity provides a low-risk opportunity to surface perceptions and establish relevance (Darling-Hammond et al., 2017; Marzano et al., 2001).

In our experience, participants frequently identify a wide range of student uses, including:

- Generating ideas for writing assignments
- Receiving homework assistance
- Creating study guides or summaries

- Practicing foreign languages
- Producing images, videos, or presentations
- Seeking emotional support or advice
- Circumventing academic tasks

The discussion that follows often reveals an important reality: AI is already present in students' lives. Some examples highlight opportunities for engagement, creativity, and support, while others raise concerns about dependency, misinformation, privacy, or academic integrity. This natural tension creates an ideal transition into ETHOS.

Rather than positioning AI as inherently good or bad, participants begin to recognize that the more important question is how students are using AI and under what conditions. ETHOS provides a structure for examining those questions. The framework shifts the conversation away from simple approval or prohibition and toward thoughtful reflection about whether AI use aligns with developmental needs, educational goals, and the values of the middle grades.

2. (re)Introducing the ETHOS Framework

Once participants have surfaced their existing experiences and observations, we formally (re) introduce the ETHOS framework. Revisiting the framework after surfacing, authentic student uses positions ETHOS not as a rigid rulebook, but as an active lens for decision-making.

We display the image shown in Figure 2 and ask participants, "What do you notice? What do you wonder?"

This prompt is based on Harvard's Project Zero's Thinking Routine, *See, Think, Wonder*. Perkins (2003) wrote, "Thinking routines are simple patterns of thinking that can be used over and over again and folded easily into learning in the subject areas" (p. 2). Leveraging familiar visual thinking structures lowers cognitive friction when introducing complex technological ethics.

At this stage, we briefly review each component and emphasize that the ETHOS lens requires educators to consider all five tenets together. The tenets are not sequential steps or a checklist in which one favorable answer makes an activity appropriate. Instead, they reveal tensions that require professional judgment. An activity may expand opportunity while creating concerns about transparency or safety; another may protect privacy while limiting meaningful access. Different tenets may carry greater weight in a particular context, but none should disappear from consideration. The purpose is not to produce a numerical score or automatic verdict; it is to make the reasoning behind an instructional decision visible, discussable, and responsive to the learner and context.

Crucially, looking at AI through the ETHOS framework prevents it from becoming a tool that exacerbates existing educational inequities. True middle-level responsiveness requires us to confront social justice issues inherent in digital spaces—such as algorithmic bias that misrepresents marginalized identities, or the "digital use divide" where some students use AI for passive drill-and-practice while others use it for creative exploration. By

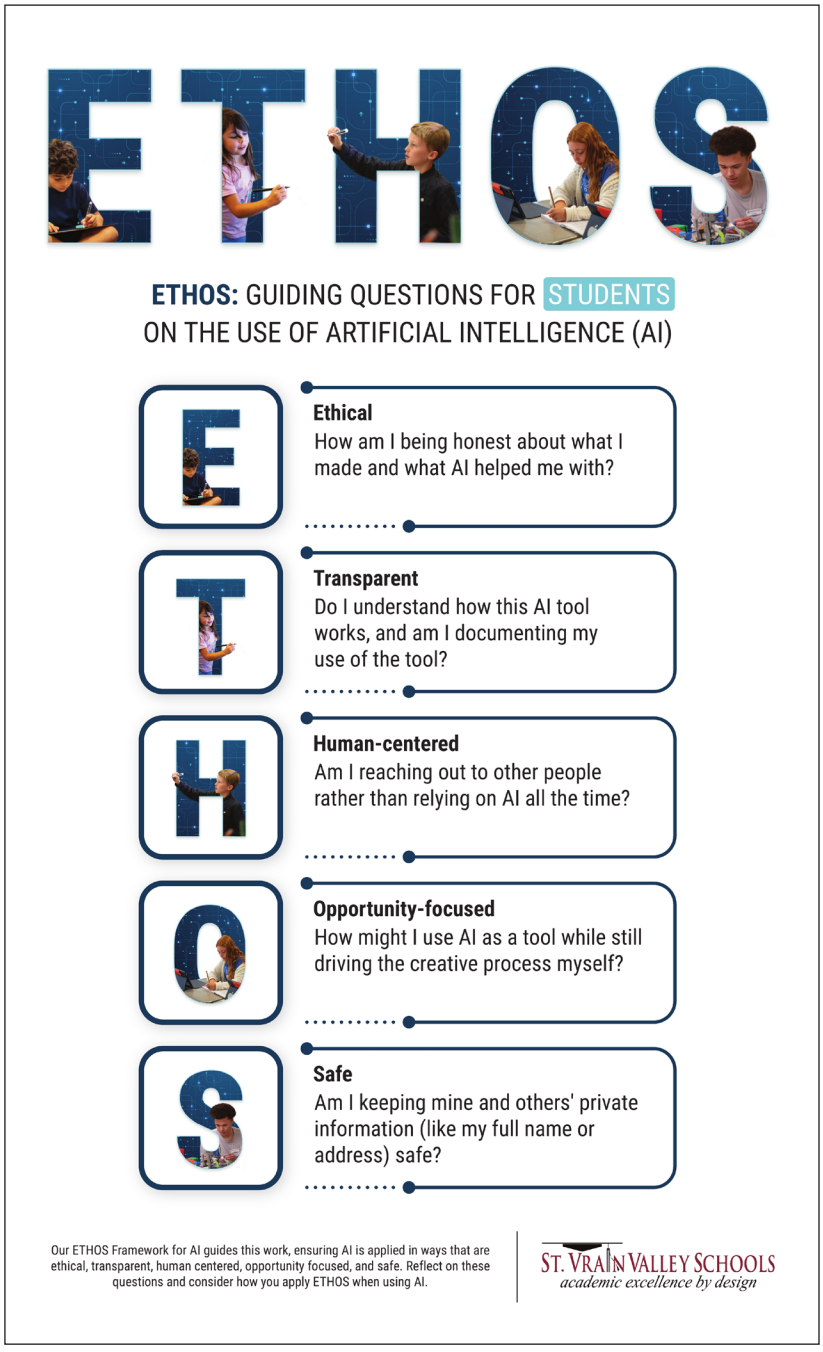
Figure 2
ETHOS slide



asking who benefits from an AI-supported activity, what thinking students retain, and whether all learners have meaningful opportunities to create and inquire, ETHOS is intended to help practitioners identify and interrupt patterns in which some students are positioned primarily as passive users of technology.

To turn abstract tenets into daily classroom practice, our district operationalized ETHOS into targeted stakeholder matrices (see Figures 3 and 4). These function as metacognitive checkpoints, guiding student digital citizenship while providing teachers with an instructional design lens that helps educators examine whether an instructional design promotes active sense-making or passive completion. Read together, the two matrices show that responsibility for AI-supported learning is shared but not identical. The student matrix prompts learners to examine their purpose, disclose their use, protect personal information, and consider whether AI is supporting or replacing their thinking. The educator matrix adds responsibilities that students cannot carry alone: selecting developmentally appropriate uses, anticipating bias and access barriers, protecting student data, and designing opportunities for dialogue, verification, and independent sense-making. During professional learning, facilitators can invite participants to compare corresponding questions in the matrices and identify where adult planning creates the conditions for responsible student choice. This comparison prevents ETHOS from becoming a list of expectations imposed only on students.

Figure 3
St. Vrain Valley Schools ETHOS for AI: Guiding Questions for Students



To model transparency, we openly share how AI was used in the creation of the professional learning session itself (see Figure 5). For example, AI tools helped generate an initial structure for case studies and simulate historical conversations used in learning activities. By making our own use visible, we demonstrate that transparency is not simply a student expectation; it is a professional

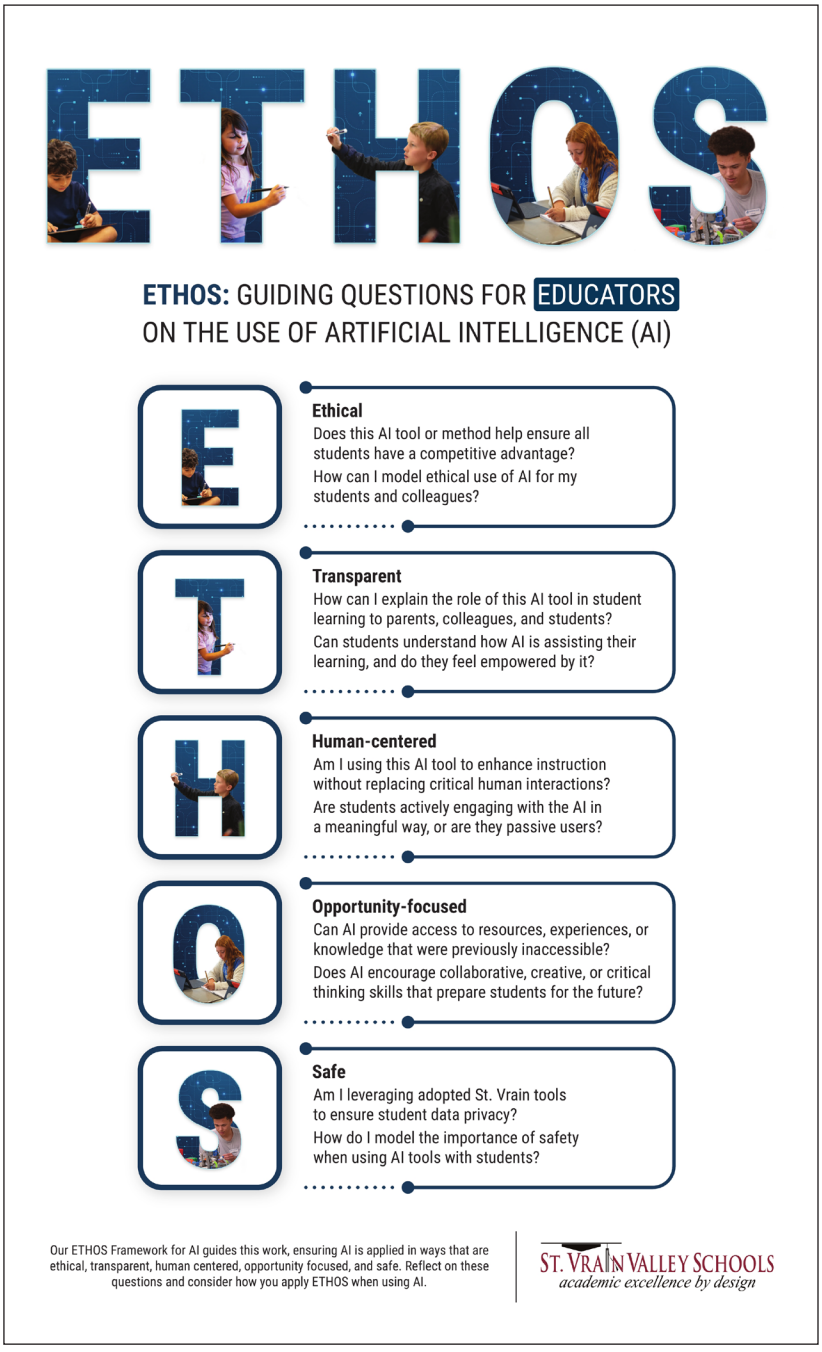
practice. This modeling helps normalize appropriate disclosure while reinforcing that educators remain responsible for evaluating, revising, and contextualizing AI-generated content.

Following this discussion, participants engage in a brief reflection centered on the concept of transparency. Rather than focusing solely on citation requirements or disclosure statements, we ask participants to consider how openness about AI use can strengthen trust, support AI literacy, and model responsible decision-making. The conversation often reveals that transparency serves as a foundation for all other elements of ETHOS because students cannot critically evaluate AI use if that use remains hidden.

We then introduce one of the most practical distinctions within our district's AI work: the difference between GenAI-enhanced and GenAI-dependent learning. This shifts conversations away from tool adoption and toward student growth. We ask participants to consider two questions:

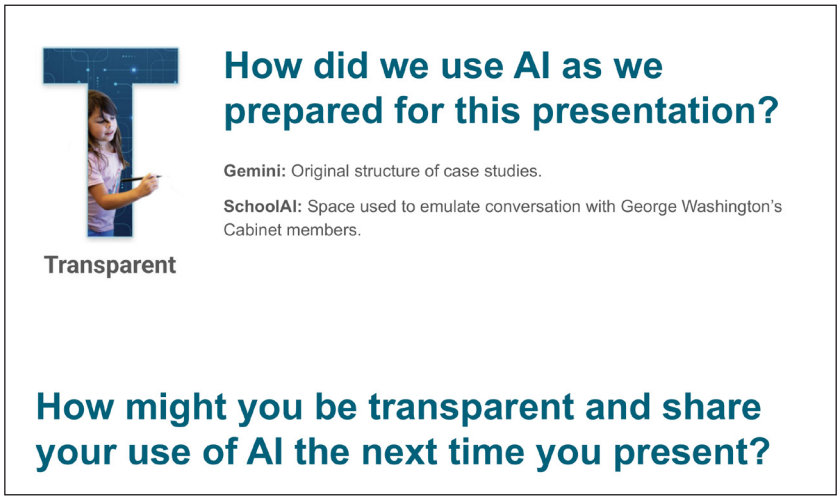
1. Is AI helping this student grow, or is it simply helping them get done?
2. Is AI adding value to the learning experience, or should this remain a fully human-centered task?

Figure 4
St. Vrain Valley Schools ETHOS for AI: Guiding Questions for Educators



This distinction between the GenAI-enhanced and GenAI-dependent student is not merely a matter of academic integrity; it is fundamentally rooted in middle-grades developmental theory. Early adolescence is characterized by significant, ongoing restructuring of the prefrontal cortex, the seat of executive functioning, impulse control, and self-regulation (Bishop & Harrison, 2021; Brinegar & Caskey, 2022). When tasks are outsourced entirely to GenAI (GenAI-dependence), educators risk bypassing the cognitive architecture required to build these executive skills. Conversely, GenAI-enhanced learning can hit students in Vygotsky's (1978) zone of proximal development and

Figure 5
Transparency slide for professional development



preserve students' productive struggle (Hiebert & Grouws, 2007) or the cognitive sweet spot where learning occurs. By deliberately structuring GenAI interactions to keep students in this zone, educators respect the young adolescents' emerging need for cognitive autonomy while providing the necessary guardrails to prevent executive overload. The goal is not to eliminate GenAI from learning, but to ensure that technology serves as a scaffold rather than a substitute.

Together, the ETHOS framework, transparent modeling, and the GenAI-enhanced versus GenAI-dependent distinction establish a shared language for the remainder of the professional learning experience. Participants leave this section with more than a definition of responsible GenAI use; they leave with a practical framework for evaluating classroom decisions and considering how technology can support the developmental needs of young adolescents.

3. Analyze Case Studies

To move participants from baseline awareness to application, we introduce realistic, borderline ambiguous case studies grounded in authentic school experiences. The cases used in this professional learning sequence are anonymized accounts, adaptations, and composites drawn from experiences in our district. To protect students and staff, identifying details were changed, and the scenarios were condensed to foreground the instructional tensions participants were asked to examine. Google's Gemini (our district adopted tool) was used to generate an initial structure and/or translate the cases into appropriate grade bands (for example, elementary participants need elementary context-specific cases), after which the authors reviewed and revised every case for contextual accuracy, developmental appropriateness, and alignment with the session's goals. The cases should therefore be read as facilitated learning materials rather than as research data or verbatim records of individual student's experiences. These scenarios require interdisciplinary teams to navigate competing instructional priorities through the ETHOS lens, moving participants past simple "cheating vs. compliance" binaries. Case studies connect theory to practice in realistic ways while providing structures learners use to make meaning (Toogood, 2023). Rather than analyzing theoretical ethics, interdisciplinary teams and professional learning communities (PLCs) were handed practical, borderline ambiguous scenarios to debate. Each case presents a situation involving student or educator use of GenAI and asks participants to analyze the scenario through the ETHOS lens. Instead of seeking consensus or a single correct response, the activity is designed to encourage professional dialogue and perspective-taking.

To structure discussion, participants work collaboratively using three sentence stems:

- **Core Issue:** "We identified the core issue as…"
- **ETHOS:** "We connected this to [element of ETHOS]…"
- **What's the Opportunity?:** "Our idea was to…"

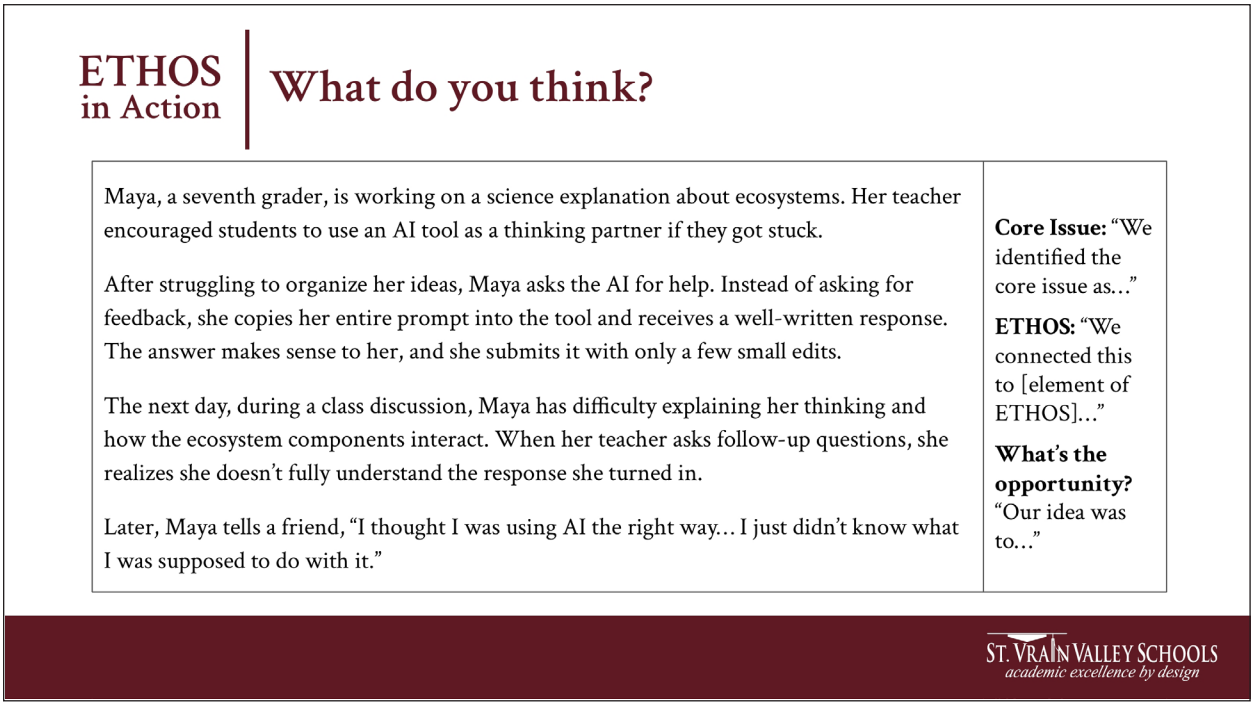
During one iteration of this activity, the friction between compliance and praxis became immediately visible among school staff members. For example, during a debate over a scenario where a student used GenAI to brainstorm an essay outline, one language arts teacher noted something to the effect of, "My immediate instinct was to flag it as cheating because the student didn't generate the structure themselves. But looking at it through the lens of executive functioning, I realize that outline acted as a critical scaffold for a student who usually gets paralyzed by a blank page." This shift in perspective was common; as participants engaged with the case studies, their conversations shifted from a desire for absolute control to a recognition of how GenAI could support diverse developmental needs. Consider the example shown in Figure 6.

Maya, a seventh-grade student, is encouraged to use GenAI as a thinking partner while working on a science explanation. Rather than using the tool to generate ideas or seek feedback, she copies the entire prompt into a GenAI system and submits the resulting response with only minor edits. Although the assignment is completed successfully, Maya later struggles to explain the concepts independently and admits that she was unsure how the GenAI tool was intended to support her learning.

At first glance, participants often focus on issues of academic integrity. However, deeper discussion typically reveals a more nuanced concern. The central problem is not simply that Maya used GenAI; it is that she lacked sufficient guidance regarding how to use GenAI in ways that supported learning. Her experience illustrates the distinction introduced earlier between GenAI-enhanced and GenAI-dependent learning. The technology successfully produced an answer, but it did not necessarily contribute to Maya's understanding.

Participants frequently connect this case to multiple elements of ETHOS. Some emphasize the Human-Centered component, noting that opportunities

Figure 6
Maya's Case



for dialogue, feedback, and teacher guidance may have been missing. Others focus on Opportunity-Focused, recognizing that GenAI could have been used to scaffold Maya's thinking rather than replace it. Still others highlight Transparent, arguing that students need explicit instruction about how GenAI contributes to the learning process and when its use should be disclosed.

The final question, *What's the opportunity?*, is often where the richest discussion emerges. Participants propose strategies such as providing examples of effective prompting, teaching students how to use GenAI for feedback rather than answer generation, requiring reflection on GenAI-assisted work, or building in opportunities for students to explain their thinking after using GenAI. In each case, the emphasis shifts from punishment to learning.

This case-based approach reinforces a central principle of the ETHOS framework: responsible GenAI use is rarely determined by the tool itself. Instead, it depends on the context, purpose, and developmental needs of the learner. By engaging in structured discussion around authentic dilemmas, participants in our district reported developing the confidence and shared language necessary to make thoughtful decisions when similar situations arise in their own schools and classrooms.

4. Subject/Context-specific Break Outs

Abstract GenAI guidelines often stall during implementation because practitioners struggle to translate high-level ethics into daily disciplinary tasks. Subject-specific breakouts help bridge this gap by providing concrete examples that connect GenAI use to authentic learning goals.

Maya's case (Figure 6) illustrates GenAI dependence because the tool completes the intellectual work she was expected to develop. The subject-specific example that follows illustrates the contrasting design principle. In the Hamilton and Jefferson activity, students build historical knowledge, analyze primary sources, and formulate evidence-based questions before interacting with a GenAI representation. The interaction is therefore positioned as one scaffold within a larger inquiry rather than as a replacement for historical reasoning.

The facilitator organizes participants into subject-area or role-alike groups and provides each group with a learning objective, an example GenAI-supported experience, the educator ETHOS matrix, and a planning template. Classroom teachers and instructional specialists examine how the example would function in their content area, while administrators and technology staff participate as partners who can identify policy, access, privacy, and implementation considerations.

Rather than beginning with a tool demonstration, each breakout starts with a clearly defined learning objective. In the example shown in Figure 7, students are expected to compare and contrast two members of George Washington's cabinet. The learning target remains grounded in historical thinking and analysis rather than technology use. GenAI serves as a vehicle for engagement and inquiry, not the destination.

Figure 7
When using GenAI makes sense

ETHOS in Action | ETHOS Modeled

Outcome: Students will compare and contrast two members of George Washington's cabinet.

ETHOS Setup: "We will engage in a space where you choose AH or TJ. Are you really interacting with them? What are you interacting with? Here is our opportunity… Here is the purpose…Here is how much time we will engage…"

An ETHOS-aligned educator recognizes the foundation they must build before interacting with a GenAI space. Prior knowledge makes success possible when interacting with a GenAI space. Before students interact with the GenAI-powered learning experience, educators model an ETHOS-informed setup conversation. This step is intentional and often overlooked. Students are encouraged to consider questions such as:

- What am I interacting with?
- What is the purpose of this interaction?
- How much time should I spend using the tool?
- How will this experience support my learning goal?

These framing questions operationalize ETHOS in practice. Students are not simply handed a digital tool; they are guided to think critically about the purpose, limitations, and intended use of the technology before engaging with it. See Appendix A for an elaborated content-specific example based on Figure 7.

Viewed through an ETHOS lens, the technology supports learning in several ways. It creates opportunities for active inquiry, makes historical perspectives more accessible, and encourages students to engage with content through dialogue. At the same time, the teacher maintains responsibility for establishing the learning objective, framing the experience, and helping students critically evaluate the information they encounter.

Importantly, the breakout sessions are designed to model the distinction between GenAI-enhanced and GenAI-dependent learning introduced earlier in the professional learning experience. The goal is not for students to have an interesting conversation with a GenAI character. The goal is for students to develop a deeper understanding of historical perspectives and use that understanding to support disciplinary thinking. The GenAI interaction serves as a scaffold that enhances access to learning rather than replacing the learning itself.

This sequence is GenAI-enhanced because the interview occurs only after students have constructed a timeline, analyzed primary sources, investigated the issues separating the two historical figures, and formed preliminary comparisons. Students enter the GenAI interaction with evidence and questions rather than treating the system as an authority. They then verify claims and revise their comparison after the interaction. The design preserves the central work of historical inquiry while using GenAI to provide an additional opportunity for perspective-taking and questioning. It is transparent about the simulated nature of the exchange, human-centered in the teacher's framing and monitoring, opportunity-focused in expanding access to dialogic inquiry, and safe and ethical only when privacy protections, source verification, and discussion of representational limitations are made explicit.

By concluding with subject-specific examples, our session feedback indicated that participants left with a clearer vision of what responsible GenAI integration can look like in practice. The breakouts demonstrate that ETHOS is not an abstract framework reserved for policy documents or professional discussions. It is a practical decision-making tool that can guide instructional design, shape classroom interactions, and help educators ensure that GenAI use remains aligned with the developmental needs of young adolescents and the goals of meaningful learning.

Implementation Friction Points

While the ETHOS framework provides a powerful shared vocabulary, operationalizing it across a diverse ecosystem of middle school educators comes with distinct friction points. During early rollouts, we observed that participants frequently defaulted to defensive compliance monitoring when under stress, occasionally weaponizing plagiarism detectors despite framework guidelines. Furthermore, moving students from a "GenAI-dependent" mindset ("just getting it done") to a "GenAI-enhanced" workflow ("growing") requires a cultural shift that cannot happen in a single professional development session. Cultivating metacognitive checkpoints requires ongoing advisory reinforcement, scaffolding, and patience as early adolescents test boundaries.

Our district benefited from a structured rollout supported by localized professional development infrastructure. But the core philosophy of ETHOS remains highly adaptable across the wider, socio-economically diverse middle grades ecosystem. Schools do not need a comprehensive or highly funded GenAI initiative to begin. A minimum viable starting point can consist of one facilitator,

one ambiguous case, copies of the five ETHOS tenets, and a 30-minute staff conversation. Participants can identify the learning at stake, examine the case through each tenet, and agree on one shared question to use when planning future GenAI-supported activities. This entry point does not require student accounts, paid software, or a live tool demonstration. Schools with limited digital access can use printed cases or discuss GenAI encounters students report outside school. Subsequent sessions can add the stakeholder matrices, subject-specific planning, and student reflection routines as local capacity grows. Beginning small allows schools to build shared language and professional judgment before investing in tools or attempting system-wide implementation.

Conclusion

The challenge facing middle grades educators is not whether artificial intelligence will influence teaching and learning. It already has. The more pressing question is whether schools will approach GenAI as a compliance problem to manage or as a developmental opportunity to guide. For decades, middle level educators have recognized that responsive schooling requires more than delivering content. It requires helping young adolescents develop the habits of mind, decision-making skills, ethical reasoning, and self-awareness needed to navigate an increasingly complex world. Generative AI does not change that mission. If anything, it amplifies its importance. As students gain access to tools capable of generating information, ideas, images, and advice with unprecedented speed, they need adults who can help them think critically about when, why, and how those tools should be used.

The ETHOS framework offers one approach for meeting this challenge. Rather than prescribing a list of approved or prohibited uses, it encourages educators and students to engage in ongoing reflection about the ethical, transparent, human-centered, opportunity-focused, and safe use of GenAI. More importantly, it provides a practical bridge between district-level guidance and classroom-level decision-making. Through routines that activate prior knowledge, structured case discussions, transparent modeling, and content-specific applications, educators can create learning experiences that place student growth—not technology—at the center.

This work also carries a democratic purpose. As AI systems increasingly mediate the information young people encounter and the choices available to them, students need more than functional skill with emerging tools. They need opportunities to question automated authority, recognize whose perspectives may be missing, communicate transparently, and make reasoned judgments about when technology should or should not shape their work. These practices join critical literacy with civic agency: students learn not simply to consume GenAI-generated material, but to participate thoughtfully in a society influenced by algorithmic systems. A developmentally responsive approach gives young adolescents structured opportunities to practice that agency with the guidance of trusted adults.

Ultimately, the future of AI in middle grades education will not be determined by the capabilities of the tools themselves. It will be determined by the questions educators ask, the values they prioritize, and the learning environments they create. When schools approach GenAI through a lens of developmental responsiveness, they position young adolescents not merely to use emerging technologies, but to engage with them thoughtfully, responsibly, and with a clear sense of purpose.

Declaration of Generative AI and AI-assisted Technologies in the Writing Process

As authors and educators, we seek to be transparent about our use of artificial intelligence. As we conceptualized the piece we wanted to: situate the necessity for a framework in middle level literature; showcase the applicability of the ETHOS framework; and demonstrate how we structure professional developmental to build educator capacity. We collaborated with AI throughout the writing process to support the development of this manuscript. The collaboration allowed us to distill complex experiences into cognitively accessible chunks. Below is a more information on our specific applications of AI:

- *Research:* In addition to Google Scholar Alerts for "AI education K-12," "generative AI student learning," and "Artificial intelligence classroom middle school," we used AI (specifically our school district's adopted model of Gemini for Education), to help identify sources relevant to the manuscript. As instructional leaders who have other (non-AI specific) roles within

our school district, finding and vetting sources quickly was vital. Gemini also helped summarize key points and findings in the sources.
- *Title brainstorming:* We used Gemini to brainstorm title ideas that aligned with our ETHOS Professional Development inspiration.
- *Writing review:* The original draft of this piece was well over the suggested word limit. We used Gemini to review drafts of our writing and provide recommendations related to cutting repetitive components and wordy sentences. We reviewed the suggestions and decided if the suggestions were warranted or not.
- *Feedback:* We tasked Gemini to act as a Peer Reviewer for Middle Grades Review by uploading MGR's Aims & Scope and the Reviewer Guidelines. This resulted in a revise-and-resubmit-similar report that we used to refine and improve our manuscript.

We view our use of AI as an integral part of our writing and editing process. We also believe, and act upon the belief, that the Human-centered tenet of ETHOS remains the most important part of this work. We asked ourselves, "Is AI helping us grow, or is it simply helping us get done?" and "Is AI adding value to this writing experience, or should this remain a fully human-centered task?" In both instances, we believe the former.

A special thank you to Hannah McDonald for the format and structure of this AI Use Statement.

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Appendix A:
Sample Lesson with GenAI Component

Objective:
Students will compare and contrast two members of George Washington's cabinet: Alexander Hamilton and Thomas Jefferson.

Colorado Academic Standard (2022):
8th Grade Social Studies, Standard 1, History

Investigate and evaluate primary and secondary sources from multiple diverse perspectives about United States history from the American Revolution through Reconstruction to formulate and defend claims with textual evidence and logical reasoning.

Prepared Graduates:
Analyze historical time periods and patterns of continuity and change, through multiple perspectives, within and among cultures and societies.

More Information Icon Grade Level Expectation:
Develop a contextual understanding of the historical eras, individuals, groups, ideas, and themes from the origins of the American Revolution through Reconstruction.

Colorado Essential Skills:
- Interpret information and draw conclusions based on multiple perspectives (Critical Thinking and Analysis).
- Synthesize ideas in insightful ways about historical eras, individuals, groups, ideas, and themes (Creativity and Innovation).
- Make predictions and design data/information collection and analysis strategies to recognize continuity and change through time (Critical Thinking and Analysis, Data Literacy).
- Look for and find value in perspectives expressed by others (Adaptability/Flexibility).

Learning Experiences:
1. Develop a Basic Historical Timeline
Students should understand where Hamilton and Jefferson fit within the founding era.

Possible learning experiences:
- Create a timeline from the American Revolution through the early republic.
- Sort key events into chronological order.
- Match historical figures to major events.

Students should know:
- Hamilton and Jefferson were Founding Fathers.
- Both served in George Washington's administration.
- They disagreed about the future of the United States.

2. Analyze Primary Sources
Students need exposure to the actual ideas of each figure.

Possible learning experiences:
- Read short excerpts from Hamilton's writings (Federalist Papers).
- Read excerpts from Jefferson's writings (Declaration of Independence, letters).
- Highlight evidence of each person's beliefs.
- Complete a "What does this source tell us?" organizer.

Focus questions:
- What kind of government does Hamilton seem to support?
- What kind of government does Jefferson seem to support?

Appendix A (continued):
Sample Lesson with GenAI Component

3. Investigate Key Issues Through Stations
Rather than studying the people first, study the issues that divided them.

Stations could include:
- National bank
- Federal vs. state power
- Economy (industry vs. agriculture)
- Interpretation of the Constitution
- Foreign policy

At each station students:
- Examine evidence.
- Determine Hamilton's likely position.
- Determine Jefferson's likely position.

4. Practice Perspective Taking
Students should experience defending viewpoints.

Activities:
- Four Corners debate
- Structured academic controversy
- Role cards

Example prompt:
- Should the United States create a national bank?

Students defend positions using evidence rather than personal opinion.

5. Prepare for the GenAI Interview and Create a Double Bubble Thinking Map (Compare/Contrast)
Before the GenAI interview, students should have an initial hypothesis about similarities and differences. Ask students what categories they already know or want more information on.

Example categories:
- Government Power
- Economy
- Constitution
- Foreign Relations
- Education

Students complete what they already know and identify gaps.

6. Immediately Before the Interview
Set up the interview. Tell students that they will interview a GenAI representation of either Alexander Hamilton or Thomas Jefferson. Tell them that the space is programmed to be a short interaction (only ask 2 questions). Ask students if they are actually interviewing Alexander Hamilton.

Have students generate:
1. Three questions Hamilton and Jefferson would answer differently.
2. One question they think both would answer similarly.
3. One follow-up question based on evidence they have already gathered.

Pair-Share
Have students share the questions the developed with neighbors. Each student should narrow their questions to two. If warranted, have students share their questions with the class to develop a combined bank of questions.

Appendix A (continued): Sample Lesson with GenAI Component

7. Interview Activity
Teacher should monitor dashboard for engagement and ethical considerations.

8. Post-interview Reflection
Students should reflect individually, then with a partner. After a quick write and pair-share, the teacher should ask questions related to GenAI responses that can be confirmed.

Possible questions can include:

- What confirmed your thinking?
- What challenged your thinking?
- What claims require verification?
- How would you now compare and contrast the two leaders?

References

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