Climate Literacy in Education

Expanding Access in Special Education
A Reflective Analysis

Kari Matthies, Red Wing High School, Red Wing, MN, USA

Abstract
Special Education teachers consistently balance high academic expectations with the responsibility to remove barriers that limit students' access to grade-level content. Students are also entitled to full participation in rigorous curriculum. This article details my work over the past two years to integrate Gemini, an Artificial Intelligence (AI) based tool, into my instructional practice. This reflection examines how intentional, teacher-guided AI use can strengthen independence, agency, and inclusion while supporting culturally responsive practice and democratic participation. In doing so, I argue that supporting my students' participation with AI is an ethical use of environmental resources.

Keywords
Special education, artificial intelligence, access, inclusion

Context

Special Education teachers consistently balance high academic expectations with the responsibility to remove barriers that limit students' access to grade-level content. Many of my students in grades eight through twelve read four or more grade levels below their enrolled grade, yet they are entitled to full participation in rigorous curriculum. Over the past two years, integrating Gemini, an Artificial Intelligence (AI) based tool, into my instructional practice has become a central method for supporting that participation without diluting content or lowering expectations.

My classroom includes diverse learners, including students from the Prairie Island Indigenous Nation, multilingual learners, and students with a range of learning disabilities. Each student brings cultural knowledge and strengths, yet many encounter persistent challenges in decoding, vocabulary, reading efficiency, and executive functioning. This reflection examines how intentional, teacher-guided AI use can strengthen independence, agency, and inclusion while supporting culturally responsive practice and democratic participation.

AI Environmental Impacts

Concerns about AI's environmental footprint, particularly water consumption, energy use, and carbon emissions, are increasingly present in public discourse. These concerns are valid, but they are often overstated or based on outdated information. Recent reporting, including Jasmine Sun's 2026 analysis in The New York Times, demonstrates that water use in AI systems has decreased substantially due to improved cooling technologies and regulatory pressure. As a result, the primary environmental impact of AI today is electricity consumption, not water.

In educational contexts, the scale of AI use is comparatively minimal. Classroom-level interactions with AI tools represent a low-impact application, similar to other digital accessibility supports. Teaching students about AI's environmental footprint also provides an opportunity to engage them in critical conversations about sustainability, ethics, and responsible technology use. All are essential components of education.

Research Connections

Current research on AI and learning disabilities aligns closely with the practices described below. Panjwani-Charania and Zhai (2024) identify seven categories of AI tools used to support students with learning disabilities, noting that most research focuses on

dyslexia and reading difficulties. Their review emphasizes that AI is most effective when paired with explicit instruction and high expectations.

Paglialunga and Melogno (2025) similarly highlight the importance of strong instructional design and caution against over-reliance on AI without teacher guidance. Broader reviews of AI in education identify systemic challenges—including teacher readiness, equity concerns, and data privacy—that must be addressed to ensure responsible implementation (Nguyen & Truong, 2025).

Research also suggests that students may use AI to avoid cognitive effort unless explicitly taught responsible strategies (McQuiston, 2025). This finding directly supports my instructional approach: AI lowers barriers, but students must still think.

Benefits of AI for Diverse Learners

My use of Gemini is grounded in the principle that AI should function as an accessibility scaffold rather than a replacement for cognitive effort. Like text-to-speech, graphic organizers, or sentence frames, Gemini adjusts the entry point to learning while preserving the academic destination. For students with decoding challenges, limited vocabulary, or reduced reading efficiency, Gemini can lower the Lexile level of complex texts while maintaining conceptual integrity. This enables meaningful engagement with grade-level assignments and increases participation in general education settings.

The integration of AI has also expanded student independence. Instead of relying on adults to modify materials, students can adapt content themselves in real time. This shift enhances dignity, agency, and confidence. Students who previously hesitated to participate now enter classrooms equipped with tools that support their learning needs.

In Practice: Instructional Routines

Introducing AI into a Special Education setting requires explicit instruction, modeling, and predictable routines. To ensure responsible and purposeful use, I teach a structured process that emphasizes clarity, accuracy, and student agency.

Students begin by identifying the specific task they need support with, such as lowering Lexile levels, generating outlines, organizing information, or clarifying vocabulary. We treat prompting as a literacy and metacognitive skill, practicing how to write precise, purposeful prompts. Once Gemini produces a document, students evaluate it for accuracy, completeness, bias, and voice, reinforcing the understanding that AI is a tool rather than an authority.

Students then revise, annotate, and expand the content so the final product reflects their own thinking. Instruction also includes discussions of academic honesty and transparent citation. These routines build executive functioning, self-advocacy, and critical digital literacy.

Community, Collaboration, and Democratic Practice

Preparing students for the digital age requires more than technical proficiency. Students must learn to question sources, recognize bias, and understand how information circulates. Many of my learners enter school feeling that academic spaces happen to them rather than with them. When AI lowers barriers to reading and writing, students can participate in classroom discourse, form opinions, and defend their ideas. This is inclusion in action: access not only to curriculum, but to participation, agency, and voice.

The insights gained from integrating AI into Special Education extend beyond my classroom. I share practical strategies with colleagues through brief demonstrations, conversations, and curriculum committee work. I am also preparing to participate in a family-facing event to help caregivers understand how AI supports access, confidence, and independence for diverse learners. Making this work visible strengthens trust and builds a shared understanding of inclusive practice.

Conclusion

While AI systems carry an environmental footprint, current evidence shows that these impacts, particularly water consumption, have decreased substantially due to advances in cooling technology and regulatory oversight. The primary environmental cost now lies in electricity use, a factor that must be acknowledged but contextualized within the scale of classroom-level implementation. When used intentionally, transparently, and with explicit instruction, AI in Special Education represents a low-impact, high-benefit application of emerging technology. Its ability to remove literacy barriers, strengthen executive functioning, and expand access to rigorous curriculum offers educational gains that far outweigh its comparatively modest environmental demands. In this way, responsible AI use not only supports equitable learning trajectories but also models sustainable, informed engagement with technology.

AI does not replace the relationships, scaffolding, or pedagogical expertise required in Special Education. Instead, when implemented intentionally, it enhances them. Gemini has become a tool that removes barriers rather than adding new ones, enabling students to access rigorous curriculum, build independence, and participate fully in general education settings. As educators continue to explore the role of AI in K–12 schools, it is

essential to center equity, cultural responsiveness, and student agency. This reflection demonstrates that when AI is used as a scaffold, not a substitute, it can transform learning trajectories for students with learning disabilities.

References

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