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Reframing Bloom's for the Age of AI: A White Paper for Future-Ready Educators

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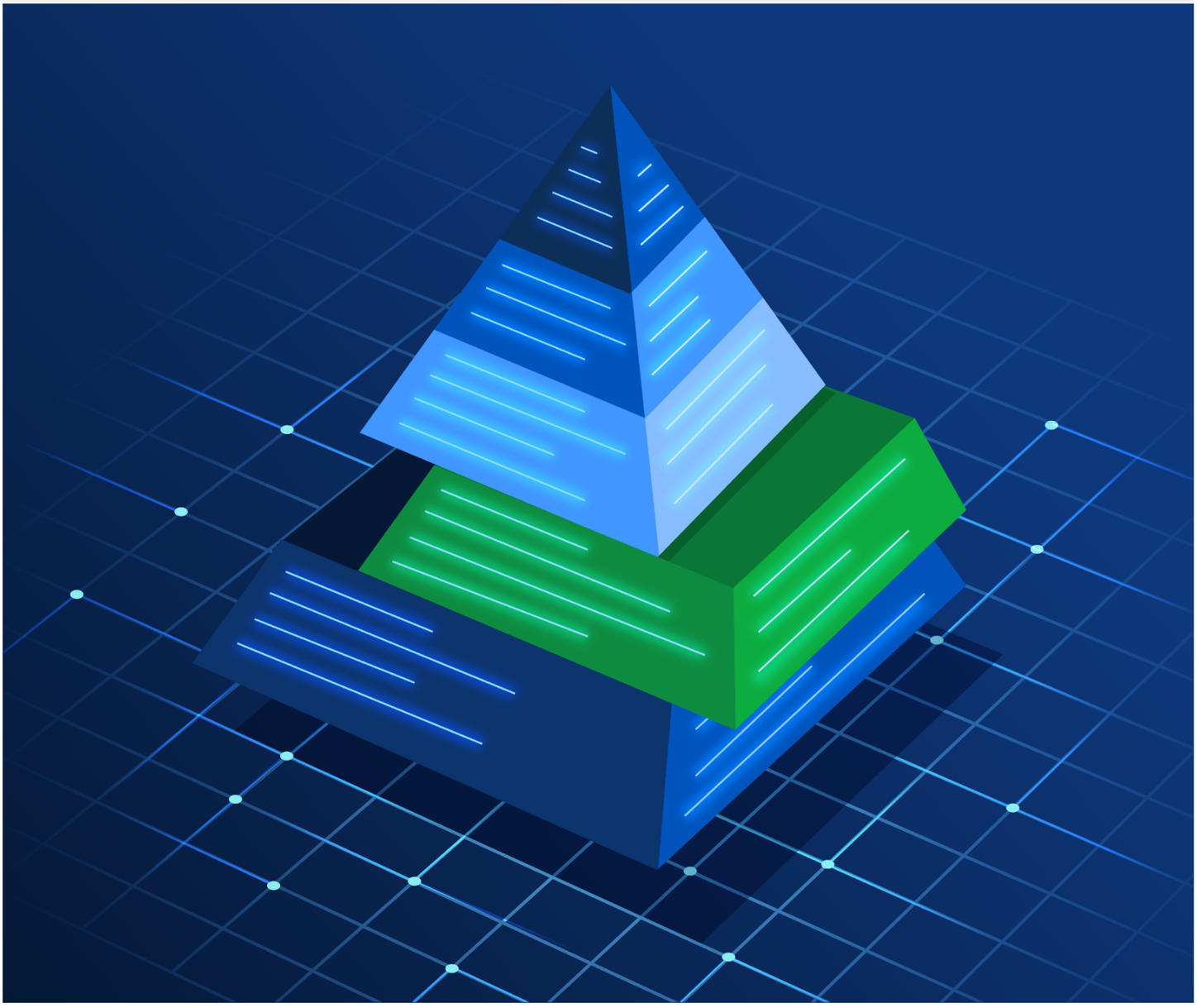

Executive Summary

The accelerating influence of artificial intelligence in education presents both urgency and opportunity. As institutions grapple with how to prepare students for an AI-augmented world, traditional models of teaching and assessment must evolve. This white paper introduces a reframed version of Bloom's Taxonomy, updated for the age of AI, that emphasizes identity formation, interdisciplinary synthesis, and real-world impact. Through this lens, educators can shift from fear to framework, leveraging AI not as a threat, but as a tool for deeper, more human learning. Anchored in pedagogical theory, the framework provides a practical, ethical path forward for institutions seeking to lead in the era of AI. This is not just a framework; it is a blueprint for empowering educators and students to thrive in a future that is already here.

Introduction: A Call to Reframe Assessment in the Age of AI

Artificial intelligence (AI) is rapidly transforming education. While AI tools promise personalization, efficiency, and innovation, many academics feel uncertain about how to adapt their assessment practices. This rapid ascent of innovation has also sparked a wave of concern specifically in teaching and learning. Instructors worry that AI may erode students' cognitive skills, leading to shortcuts instead of deep learning. On the other hand, AI presents unprecedented opportunities for learners to explore, create, and analyze with new tools at their fingertips.

Bridging Traditional and AI-Driven Learning

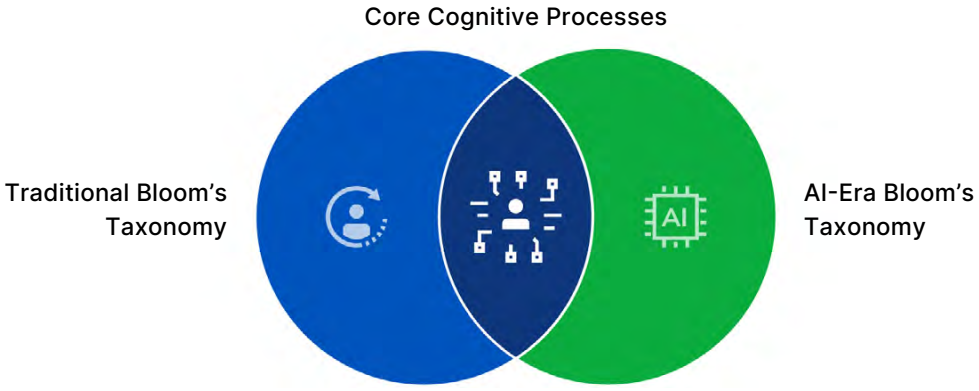

Figure 1. Bridging Traditional and AI-Driven Learning

To begin to address these concerns, we need to review what has inarguably been the compass for instructional design and assessment for decades: Bloom's Taxonomy. This taxonomy was first introduced in 1956, most recently revised in 2001, and scaffolds learning from simple recall to complex creation. The taxonomy offers a dynamic hierarchy of cognitive processes: Remember, Understand, Apply, Analyze, Evaluate, and Create. It emphasizes active verbs and measurable outcomes, helping instructors design curriculum that encourages deeper learning. This model has informed learning outcomes, assessment strategies, and curricular design in classrooms for decades (Anderson & Krathwohl, 2001). While these stages remain relevant, they must be reinterpreted considering today's technological and cognitive demands (Figure 1).

Reframing Bloom's Taxonomy for AI

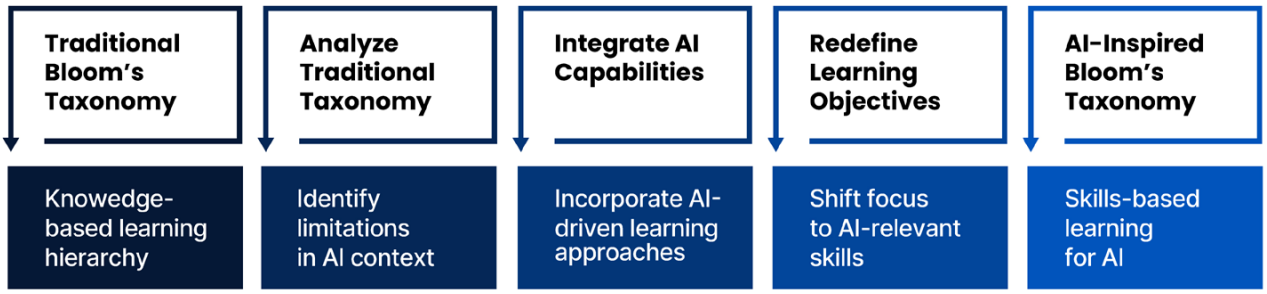

Figure 2. Reframing Bloom's Taxonomy for AI

Students must not only know and apply content, but they must also analyze how that content is generated. This becomes even more essential when AI is involved, and to also understand why it matters (Selwyn, 2023). The integration of AI into education requires an adjustment from traditional teaching methods to those that promote critical thinking and adaptability (IAforTeachers, 2025). AI provides us an opportunity to concentrate more on authentic assessments while alleviating barriers we face in embracing AI literacy.

Generative AI has upended the assumptions that underpin how we assess learning. As represented in Figure 2, it is no longer sufficient to ask students to demonstrate what they know. We must now ask them to interrogate how that knowledge was formed, how AI potentially assisted in its generation, and how it can be ethically used moving forward.

Therefore, this paper introduces a reimagined Bloom's framework for thinking and learning in the AI era, one that empowers educators to shift from fear to opportunity with the right pedagogical structure and toolset.

From Fear to Framework: Shifting the Conversation Around AI

AI is not just a tool that educators need to understand. It is becoming a foundational element of digital fluency for students across disciplines. Institutions must begin embedding AI literacy into their core curricula to ensure learners graduate with the ability to collaborate with and critically evaluate intelligent systems ethically and responsibly. This imperative is not theoretical; it is being actively addressed by leading institutions.

According to the 2025 Global AI Faculty Survey conducted by the Digital Education Council (2025), 61% of faculty report feeling only somewhat prepared, or not at all prepared, to integrate AI tools into their teaching. Yet 88% believe that AI literacy is essential to students' future success (Digital Education Council, 2025). These findings reflect an urgent need for institutions to create comprehensive frameworks that build confidence while addressing student skill development.

The Ohio State University provides a leading example through its recent launch of a university-wide AI fluency initiative, which is embedding AI literacy outcomes across general education, workforce readiness, and faculty development (Ohio State University Office of Academic Affairs, 2025). The reframed Bloom's Taxonomy aligns naturally with this institutional push. It provides a cognitive and instructional scaffold that supports AI literacy—not just in theory, but in practice.

> *Through AI Fluency, Ohio State students will become 'bilingual'—fluent in both their major field of study and the application of AI in that area. Grounded with a strong sense of responsibility and possibility, we will prepare Ohio State's students to harness the power of AI and to lead in shaping its future of their area of study.*
>
> **— Ravi V. Bellamkonda**, Executive Vice President and Provost (Ohio State University Office of Academic Affairs, 2025)

Meanwhile, UPCEA (2025) has framed the situation more starkly, declaring an "AI literacy crisis" and calling on higher education to take the lead in equipping learners for a world of rapid automation and digital disruption. This is not just about tools; it is about mindsets. It is about preparing students not just to use AI, but to think critically and creatively, while providing them an ethical framework as a foundation. These kinds of systemic efforts highlight the growing consensus: AI is not a niche competency; it is the new baseline.

As conversations around AI are often mired in apprehension from instructors, they are also met with questions and these have become main topic areas at key academic conferences (e.g., UPCEA, EDUCAUSE, USDLA). Concerns about AI reflect deeper truths about trust, technology, and transformation. A recent global faculty survey found that only 17% of instructors consider themselves advanced AI users, and just 6% believe their institutions offer sufficient AI training. At the same time, 83% of faculty expressed concern about students' inability to critically evaluate AI content, and 82% worried about overreliance on AI in coursework (Digital Education Council, 2025).

Consequently, a reframing of Bloom's helps lead conversations from fear to opportunity. Rather than view AI as a threat, instructors shift their mindset to seeing AI as a teaching partner. Many teachers already embrace AI's timesaving and personalization benefits but remain cautious about privacy, algorithmic bias, and lack of guidance and structure. Academics, from instructors to executive leadership, are seemingly both optimistic and cautious about AI, yet welcome automation while seeking ethical clarity. (Moquin, 2025; Digital Education Council, 2025).

To meet the moment, let us consider a proposal that reframes Bloom's Taxonomy to reflect how learners must engage in a world shaped by AI. These revisions offer a structured, pedagogically sound way to reimagine instruction, turning anxiety into agency (Figure 3).

Instructors need more than reassurance. They need a clear framework that helps them rethink assignments in ways that leverage AI constructively while scaffolding student reflection and metacognition. While Bloom's has long provided a foundational lens for instructional design, it has never been static; each era of revision has reflected shifts in pedagogy and educational priorities.

Comparing Traditional and AI-Focused Bloom's Taxonomy

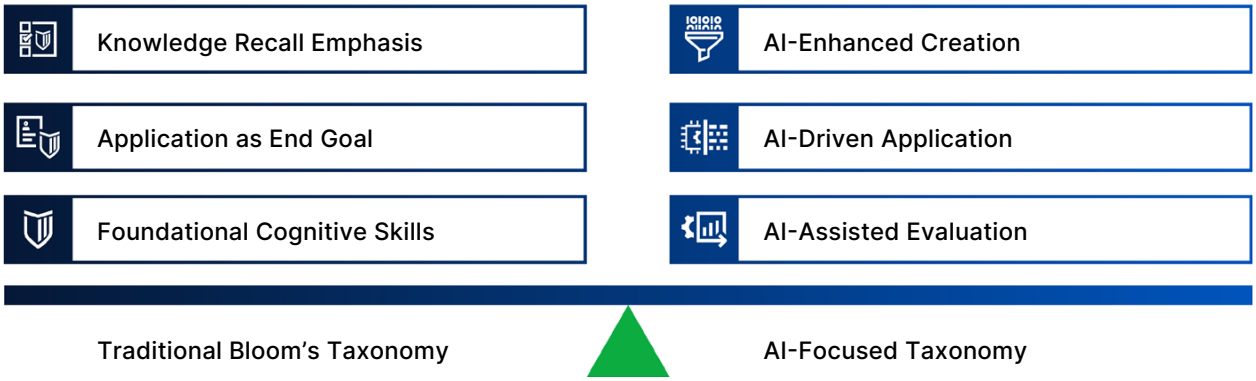

Figure 3. Comparing Traditional and AI-Focused Bloom's Taxonomy

Case in point, the original 1956 framework emphasized hierarchical cognitive domains with nouns such as "knowledge" and "comprehension". In 2001, Anderson and Krathwohl revised Bloom's to

reflect more active, verb-oriented processes such as “remembering” and “creating”, recognizing the increasing focus on active engagement and constructivist approaches to learning. The AI era now presents a similar moment of transformation. Just as earlier revisions aligned Bloom’s with new pedagogical paradigms, the proposed reframing acknowledges the shift from human-only cognition toward hybrid intelligence, where human and machine systems interact.

The reframed taxonomy is not intended to replace Bloom’s, but to extend it, acknowledging that generative AI introduces new layers of cognitive complexity, such as interrogating machine outputs, recognizing algorithmic bias, and synthesizing AI-generated insights with human judgment. In this way, the reframing situates itself within a well-established scholarly tradition, offering continuity with Bloom’s foundational legacy while also pushing the framework into future-facing territory that addresses the unprecedented challenges and opportunities of artificial intelligence in education.

Traditional Bloom’s Levels	Reframed Level (AI-Era)	Description	Example Assignment	Pedagogical Shift
Remember	**Curate and Question**	Move from memorization to source and evaluate information critically	Compare AI summary to academic sources and identify misinformation	Recall → Verification and credibility
Understand	**Prompt and Explain**	Communicate ideas clearly to generate inputs and explain outputs	Write a prompt for an AI-generated summary, then critique its accuracy	Comprehension → Translation for action
Apply	**Adapt and Apply**	Transfer knowledge to solve problems in unfamiliar scenarios	Revise AI marketing copy for a non-profit audience and justify changes	Procedure → Situational judgment
Analyze	**Compare and Validate**	Examine and compare AI-generated outputs for accuracy	Dissect an AI-generated essay for logical gaps, bias, or lack of nuance	Categorization → Critical deconstruction
Evaluate	**Challenge and Reflect**	Make ethical judgements and refine perspectives	Argue for or against the use of AI in hiring using ethical frameworks	Opinion → Justified, ethical reasoning
Create	**Co-Create**	Use AI as a starting point for original, iterative work	Generate design drafts with AI, refine independently, and explain design decisions	Output → Strategic, human-guided innovation

With AI capable of producing essays, summaries, and arguments within seconds, the instructor's role is no longer to gatekeep knowledge, but to teach students how to authentically question it, contextualize it, and co-create it responsibly. Research indicates that students who engage critically with AI-generated content demonstrate deeper understanding and retention (Mollick & Mollick, 2023). AI literacy frameworks emphasize the importance of understanding how AI works, evaluating its impact, and using it ethically (Digital Education Council, 2024; Mollick & Mollick, 2023; OECD, 2025).

As Dede and Richards (2020) explain, cognitive complexity must be coupled with cognitive adaptability. If we take all this into effect, we can surmise that instruction must pivot from acquisition to analysis, from asking "what do you know?" to "how do you know it?" and, perhaps now even more important, "how do you know it's credible?" Therefore, this reframing of Bloom's for the AI era does not mean discarding effective and traditional pedagogy; it means adapting it for new realities. It emphasizes human agency, ethical reasoning, and the importance of understanding AI as a tool, one that amplifies rather than replaces cognitive skills.

Now, let's take this a step further. In traditional interpretations of Bloom's Taxonomy, *Create* has long been considered the highest form of cognitive engagement. Yet in the age of AI, where creating content is increasingly automated or augmented, the ultimate learning objective may no longer be creation alone but *transformation*:

NEW LAYER	**Transform:**	Apply knowledge and tools to drive real-world change and social impact	Launch a community-facing AI-informed solution, evaluate outcomes, and refine	From creating artifacts to generating systemic or social change through innovation

Bloom's Taxonomy Reframed

Figure 4. Bloom's Taxonomy Reframed

Transformation, in this context, signals the intentional application of knowledge and innovation to influence systems, solve real-world problems, challenge social norms, and scale solutions beyond the classroom. It represents an evolved cognitive and ethical capacity where learners become change agents, not just content creators. By explicitly recognizing *Transform* as its *own* layer, we invite academics to design learning experiences that align with this higher-order goal to prepare students not just for knowledge application, but for impact.

It is important to note that any reframing of Bloom's for the AI era must also account for issues of equity and access. An equity-centered approach to reframing Bloom's requires instructors and institutions to design assignments and assessments that are flexible, transparent, and mindful of diverse student contexts. For example, assignments that integrate AI tools should be accompanied by clear guidance, alternative pathways, and opportunities for learners to reflect on their own access to and experiences with these technologies.

Ensuring equitable access also means embedding discussions of bias, representation, and inclusivity into course design, so that learners not only gain technical fluency but also develop critical awareness of how AI impacts knowledge production. In this sense, reframing Bloom's is not only about cognitive rigor but also about preparing students to navigate an AI-enabled world with fairness and ethical responsibility.

Let's review how embedding this AI-reframed Bloom's into instruction does not require a full course redesign, but rather intentional shifts. To illustrate, consider the following examples in health sciences and business:

1. In a nursing course, students might engage in a unit on patient care planning. Early in the learning cycle, they would begin by sourcing AI-generated case studies and questioning the completeness and accuracy of the information provided (Curate and Question). They could then use generative AI tools to simulate patient interviews, practicing how to ask effective clinical questions while explaining the rationale behind their choices (Prompt and Explain). Next, they would apply insights from the AI to design personalized care plans for hypothetical patients (Adapt and Integrate). Students then would analyze and validate the AI-generated recommendations by comparing them to established clinical guidelines and evidence-based practice (Compare and Validate). This would lead to a reflective critique of the ethical implications of AI in patient diagnostics and treatment decisions (Challenge and Reflect). Lastly, as a culminating task, students might co-create a human/AI tool to enhance care delivery in underserved populations, exemplifying the transformative potential of integrating AI into healthcare systems (Co-Create and Transform).

2. In a marketing course, the framework might guide a module on brand strategy. Students would begin by researching recent AI-generated advertising campaigns, assessing their impact and identifying trends (C*urate and Question*). They could use AI tools to generate original brand taglines, articulating how their prompts shaped the results and evaluating the messaging for clarity and tone (*Prompt and Explain*). They might then integrate AI analysis into broader brand positioning plans for fictional companies (*Adapt and Integrate*). Students would compare the performance of AI-generated content with that produced by humans, paying particular attention to cultural sensitivity, originality, and bias (*Compare and Validate*). This would prompt critical

discussions around emerging technologies such as deepfakes and synthetic media in branding, thus fostering ethical debate and personal reflection (*Challenge and Reflect*). To conclude, students could launch a mock social impact campaign that harnesses AI for civic engagement or public awareness—demonstrating how marketing can be both innovative and transformative (*Co-Create and Transform*).

These walkthroughs reveal the power of a structured, AI-aware framework to support interdisciplinary learning, bridge skills gaps, and foster future-ready graduates.

Bringing it to Life in Blackboard

Anthology's Blackboard® includes several AI-powered tools designed to support instructors in content creation, assessment design, and learner interaction. When used intentionally, these tools reinforce the AI-reframed cognitive processes outlined in the updated Bloom's framework. Here's how Blackboard's native AI features align with the modernized taxonomy and can be leveraged to support emerging institutional AI literacy goals:

Reframed Bloom's Level	Blackboard AI Feature	Example Use Case
Curate and Question	AI Test Generator	Generate multiple-choice questions, then ask students to identify flawed questions or revise them for clarity and accuracy
	AI Conversations	Create a persona that intentionally provides incorrect information and ask students to determine what is fact vs. fiction
Prompt and Explain	AI Design Assistant – Objectives and Discussions	Students critique or improve AI-generated learning objectives or discussion prompts
	AI Design Assistant – Assessment Ideas	Ask students to use AI for their assignment but have them provide their own prompts and engagement as part of the assignment
	AI Conversation	Utilize the Socratic version of AI Conversation to see how students can prompt the AI persona for additional information
Adapt and Integrate	AI Design Assistant – Authentic Assessment Ideas	Create a prompt to have students apply their knowledge through an Authentic Assessment

Reframed Bloom's Level	Blackboard AI Feature	Example Use Case
Compare and Validate	AI Design Assistant – Assessment Ideas	Generate an authentic assessment that is based on a specific content item and have students critically assess the content based on their own perspectives or experiences
	Journals + Ally	Encourage reflection with AI support for inclusive expression
Challenge and Reflect	AI Design Assistant – Assessment Ideas	Generate an authentic assessment that is based on a specific content item and have students critically assess the content based on their own perspectives or experiences
	Journals + Ally	Encourage reflection with AI support for inclusive expression
Co-Create	AI Design Assistant – Module Content Suggestions	Learners co-create lesson/module content with AI, then revise and justify changes through reflective writing or peer critique
	Group Assignments; AI Design Assistant	Students collaborate with AI to design a community resource website. They reflect on choices, integrate diverse media, and submit for peer review
Transform	Blackboard Outcomes + AI Design Assistant	**Assignment:** Students use AI to design and propose a new school-wide policy for equitable grading. They survey peers, gather data, co-author the policy, and submit it to the school board or faculty council **Transformation:** A classroom idea becomes institutional policy change, grounded in real data and ethics
	Discussions + Achievements + Blackboard Outcomes	**Assignment:** Students develop an AI-assisted awareness campaign on mental health for underserved communities. They co-create the messaging, deploy it through social media, and use Blackboard tools to track reach, gather peer feedback, and reflect on impact **Transformation:** Awareness and access to mental health resources improve within a real community

These examples reflect Anthology's intentional approach to AI integration, one rooted in pedagogy, ethics, and empowerment, and reflects a commitment to human-centered, ethically grounded innovation. Our AI-powered tools in Blackboard are not intended to automate away complexity or displace instructional expertise; rather, they are designed to amplify human creativity, deepen critical thinking, and foster meaningful learning experiences. These tools are intentionally developed to support the kind of instructional practices highlighted in this white paper, ones that prioritize engagement, reflection, and ethical reasoning.

We recognize that instructors are navigating a complex and evolving pedagogical landscape. That's why we remain committed to responsible innovation: collaborating with institutions to ensure AI enhances learning rather than shortcuts it, designing features that reduce cognitive load and administrative burden, and creating space for educators to do what they do best—teach, mentor, and inspire. In this sense, Anthology is not simply building technology; we are co-creating the future of learning. The reframed Bloom's taxonomy provides a pedagogical map. Blackboard delivers the tools. Together, they help institutions realize the promise of AI-enhanced education while safeguarding its human core.

Future Research: Connecting Transformation to Transformational Learning Theory

As the boundaries of learning expand with AI integration, the newly added **Transform** level in the reframed Bloom's Taxonomy deserves further scholarly inquiry, particularly through the lens of transformational learning and technology adoption. Transformative Learning Theory offers a compelling foundation (Mezirow, 1998).

This theory emphasizes perspective shifts that occur when individuals critically reflect on assumptions and reframe their worldview. Transform, in the AI-era taxonomy, reflects not just cognitive advancement, but a deeper change in learner identity. It is here where students become ethical agents of change, equipped to act on knowledge in ways that challenge societal norms and drive real-world impact.

Additionally, layering Transformative Learning with the Technology Acceptance Model (TAM) presents an opportunity to explore how faculty and students then perceive the usefulness and ease of AI tools in the learning environment (Davis, 1989; Davis, 1993). Understanding these perceptions is essential for promoting the meaningful adoption of AI, particularly as it relates to the types of transformative learning experiences institutions hope to foster. Future research might examine how Transformative Learning Theory with TAM constructs perceived usefulness and ease of use to influence the design and adoption of AI-enabled assignments that align to the Transform level.

Together, these two frameworks provide a rich foundation for ongoing research:

- How do AI-supported experiences promote critical reflection, identity shifts, or social action in learners?
- What institutional or instructional conditions best support transformational outcomes?
- Lastly, how does faculty or student acceptance of AI tools influence the likelihood of reaching this level of cognitive and ethical engagement?

The Transform layer invites educators and researchers to consider not just what learners can do with AI, but who they become through its use.

Conclusion: Empowering Educators for the Age of AI

The future of learning is not AI-driven. It is AI-aware, AI-augmented, and deeply human; not defined by machines, but by how we teach students to engage with them critically, ethically, and creatively. This reframed Bloom's taxonomy offers a clear and actionable model for empowering academics to navigate this new era with confidence.

From foundational skills like curation and prompting to higher-order cognitive tasks like co-creation and transformation, AI becomes not a threat to cognitive development, but a catalyst for it. When paired with the right tools, such as those found in Blackboard, this framework equips institutions to lead in the age of AI, not lag behind.

Ethical considerations around privacy, bias, and transparency must guide implementation (EDUCAUSE, 2024; Anthology, 2025). But the call is clear: now is the moment for educators to lean into innovation with intentionality and care. To move from fear to framework. From creation to transformation. And from automation to human advancement.

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