

Executive Summary:

Powerful Learning with Emerging Technology



Emerging technologies hold immense promise to promote powerful learning. This framework and the accompanying paper provide a guide for developers, learners, and educators to create powerful learning experiences with emerging technology.

Our **Framework for Powerful Learning with Emerging Technology** articulates practical design recommendations to position emerging technologies as a resource that educators, caregivers, and learners can leverage to support learning experiences and develop lifelong skills. Drawn from a comprehensive review of research and recommended practices including 59 expert interviews, the framework is based on the foundational understanding that emerging technologies complement human intelligence rather than replace it.

The framework is grounded in three principles for developing products that enable powerful learning:

Learner-Centered:

Emerging technology tools can realize learner variability to help all students reach their full potential when they **promote agency**, **foster metacognition**, and when developers **enable accessibility**.

Evidence-Based:

The starting point for developing emerging technology-enabled tools is to **apply research** and **use meaningful measures** of learning. Developers should **leverage relevant expertise** throughout these processes, including researchers, subject matter experts, educators, and learners through co-design.

Skill-Building:

Emerging technology-enabled tools must focus both on academic content and building durable skills. Among those, tools should **support critical thinking**, **spark creativity**, and **cultivate collaboration**. Developing these durable skills demands thoughtful and intentional design guided by experts who can translate research into practice.



Table 1. Powerful Learning with Emerging Technologies Framework Overview

Principle	Practice	Strategy
Evidence-Based	 Apply Research	Leverage learning theories
		Integrate research-based instructional practices
	 Use Meaningful Measures	Define learning outcomes
		Plan for iterative product improvements
	 Leverage Relevant Expertise	Collaborate with experts throughout development
		Co-design with educators and learners
Learner-Centered	 Promote Agency	Personalize for learners
		Make learning relevant
		Ground in purpose
		<i>Safety spotlight:</i> Privacy
	 Foster Metacognition	Enable productive struggle
		Provide reflective opportunities
		<i>Safety spotlight:</i> Explainability
	 Enable Accessibility	Include assistive technologies
		Consider multimodality
		Allow for translanguaging
		<i>Safety spotlight:</i> Fairness
Skill-Building	 Support Critical Thinking	Foster inquiry
		Promote learner's understanding of emerging technologies
		Encourage evaluation of emerging technologies
	 Spark Creativity	Elevate the human creative process
		Scaffold creativity
	 Cultivate Collaboration	Create opportunities for human connection
		Facilitate collaborative efforts

We advocate for product development teams to use the recommendations within this paper and framework throughout product design and development. Similarly, we advocate for education leaders, educators, and learners to leverage these principles to evaluate the tools they consider using for learning and to inform the design of learning environments that integrate emerging technologies. By embedding these principles throughout product design, selection, and implementation, we aim to create a foundation that makes learning powerful for each unique learner.

Continue reading to access in-depth information and recommendations for each principle, including illustrative examples and perspectives from expert researchers, educators, and developers.
digitalpromise.org/EmergingTechFramework

