AI, Schools and Student Thinking

Ten selected publications released August 31-September 6, 2026. Prepared for a large U.S. school division's superintendent. Artificial intelligence (AI) includes tools that generate text, feedback, and other content.

Executive takeaways

Measure independent learning. Require students to explain and apply knowledge after assistance ends.[1,3,7]

Make expectations operational. Training, family understanding, and ongoing review belong in rollout plans.[4,5,8]

Keep the evidence in proportion. Promising designs, small trials, and perceptions do not establish durable gains or broad safety.[2,6,9,10]

Reading priorities

Click a topic for its summary. Each summary links to the original source. Ranking reflects leadership relevance and evidence quality, not citation counts.

No.	Topic and finding	Evidence / release
1	**Learning after the tool is closed** Evaluate retained knowledge, not clicks or polished work.	Expert synthesis September 3
2	**Emotional support in an algebra tutor** No demonstrated learning advantage from added emotional support.	Preprint / experiment September 2
3	**Critical thinking and reliance on AI** Instructional design shapes whether AI supports or displaces thinking.	Peer-reviewed review September 3
4	**Educator readiness and family understanding** Training and parent communication remain implementation gaps.	U.S. survey September 2
5	**State guidance and governance gaps** Privacy guidance is more developed than monitoring and trust.	Peer-reviewed analysis August 31
6	**Safeguarding beyond classroom AI use** Students need trusted reporting routes for digital abuse.	Multicountry research September 3
7	**Homework quality and independent mastery** Ambitious assisted assignments did not establish foundational mastery.	Preprint / case study September 4
8	**Student writing and unclear expectations** Unclear rules and fear of accusations shape student behavior.	Peer-reviewed study September 4
9	**Feedback that prompts student reflection** Some students actively evaluate AI feedback rather than accept it.	Peer-reviewed study September 1
10	**Teacher control in proposed learning apps** Good instructional ideas can still omit decision rights and safeguards.	Preprint / design study September 3

Evidence mix: 4 peer-reviewed articles, 3 institutional reports, and 3 preprints. Higher-education findings and broader digital-safety evidence are identified explicitly.

Learning and critical thinking

1. Learning after the tool is closed

September 3, 2026 | Expert research report
Direct K-12 focus: ages 5-18

Finding. The American Psychological Association distinguishes engagement and assisted performance from durable learning. It calls for evidence that knowledge transfers beyond an app or chatbot.[1]

Evidence. A multidisciplinary expert panel synthesizes psychological research into ten recommendations for education technology; this is not a new classroom experiment.

Limits. The report cannot establish that a particular AI product works, or estimate a single effect across ages, subjects, and implementations.

Leadership implication. For an AI pilot, specify what students must explain or perform independently after using the tool. Require evidence on that outcome before expansion.

2. Emotional support in an algebra tutor

September 2, 2026 | Preprint: randomized classroom comparison
Direct student evidence: grade 7, Japan

Finding. Adding mindful chat, breathing, and supportive messages produced no statistically significant advantage in algebra learning gains or math anxiety over cognitive tutoring alone.[2]

Evidence. Of 252 students assigned within classes, only 42 completed all activities after class cancellations. The intervention lasted two sessions; exploratory activity logs covered the larger group.

Limits. One school, substantial missing outcome data, language/interface problems, and no delayed assessment limit confidence. Non-significance does not establish equivalence. Math hints were checked and fixed in advance.

Leadership implication. Treat emotional-support features as unproven additions to tutoring. Evaluate independent learning and usability, with clear adult support, before expanding a pilot.

1. APA, educational technology expert report, September 2026.
2. Rief et al., algebra tutoring study, arXiv:2609.02611v1.

Back to overview

Evidence and implementation

3. Critical thinking and reliance on AI

September 3, 2026 | Peer-reviewed systematic review
Higher education: indirect K-12 implications

Finding. Across 26 studies, AI supported reflection and feedback in some settings, while uncritical reliance was associated with reduced analytical engagement and weaker checking of information.[3]

Evidence. The review combined qualitative, survey, mixed-methods, and experimental studies. Searches ran through May 2, 2026; results were synthesized thematically, without a pooled effect estimate.

Limits. Most studies were not randomized, and all concerned higher education. The review does not establish a general causal decline in children's critical thinking.

Leadership implication. Define AI literacy through observable judgment: checking claims, comparing sources, explaining disagreements, and defending a conclusion. Measure those behaviors alongside assignment quality.

4. Educator readiness and family understanding

September 2, 2026 | Commissioned survey report
Direct K-12 context: United States

Finding. Only 20% of educators reported extensive AI training. Among parents, 77% wanted input into classroom AI use, while 20% clearly understood the guidance their child received.[4]

Evidence. Morning Consult surveyed 2,048 U.S. adults online in July 2026: 1,019 K-12 educators and 1,029 parents. IBM commissioned the weighted survey.

Limits. Self-reported readiness and perceptions are not measured teaching quality or student outcomes. The educator sample includes leaders and specialists as well as classroom teachers; vendor sponsorship warrants attention.

Leadership implication. Pair each rollout with role-specific training, examples of permitted student use, and a plain-language family explanation. Check understanding locally rather than assuming national results describe the division.

3. Suazo Galdames et al., systematic review, Frontiers in Education.
4. Morning Consult / IBM, AI readiness survey, report p. 2 and findings.

Governance and student protection

5. State guidance and governance gaps

August 31, 2026 | Peer-reviewed document analysis
Direct K-12 governance: U.S. jurisdictions

Finding. State AI guidance emphasizes ethics and data privacy. Stakeholder trust and ongoing monitoring receive less developed treatment; equity and educator capacity receive moderate attention.[5]

Evidence. Qualitative content analysis covers guidance issued from 2023 to 2026 across 40 states and territorial jurisdictions.

Limits. Documents reveal stated priorities, not implementation or effectiveness. The accessible abstract and appendix support these conclusions; full methods were behind an access restriction.

Leadership implication. Assign an owner, review date, feedback route, and evidence requirements to each local AI policy. A written policy needs a process for identifying failures and revising practice.

6. Safeguarding beyond classroom AI use

September 3, 2026 | Institutional research report
Adolescent safety: 21 countries; not U.S. prevalence

Finding. The UNICEF report estimates technology-facilitated sexual abuse affected about one in five internet-using 12-17-year-olds across the studied countries. More than four in ten cases were disclosed to no one.[6]

Evidence. Approximately 21,000 survey respondents and 100 qualitative interviews; survey rounds mainly span 2020-2021 and 2024-2025.

Limits. These are not AI-specific prevalence figures or estimates for U.S. students. Much of the evidence predates widespread generative AI. The report addresses AI-generated abuse within broader safeguarding recommendations.

Leadership implication. Include synthetic sexual images and coercion in student reporting and response procedures. Ensure students know a trusted adult and an accessible route to help.

5. Rasheed, state AI guidance analysis, Educational Policy.
6. UNICEF, Through Children’s Eyes, report page and September 3 release.

Assessment and student experience

7. Homework quality and independent mastery

September 4, 2026 | Preprint: single-course case study
University physics, Germany: indirect K-12 implications

Finding. Students produced ambitious AI-assisted work, but an unaided exam exposed weak performance. The course did not reliably demonstrate its foundational learning goals.[7]

Evidence. Forty-two active coursework records; 27 exam takers averaged 20.6 of 80 points. Evidence also included a student survey and staff observations.

Limits. There was no randomized comparison. Grading rewarded homework heavily, reducing incentives to attempt the exam; course difficulty and design also confound the results. This cannot isolate an AI effect.

Leadership implication. Pair assisted projects with meaningful independent checks and adequate unaided practice. Align grading incentives so those checks measure effort and mastery rather than strategic non-participation.

8. Student writing and unclear expectations

September 4, 2026 | Peer-reviewed mixed-methods study
University sociology: indirect K-12 implications

Finding. Students described varied AI uses, from feedback and explanations to extensive delegation. Interviews also revealed anxiety about unclear rules and false misconduct accusations.[8]

Evidence. The 2025 study combined 504 survey responses with focus groups and interviews involving 12 students at one university campus. Only 46% of respondents to the guidance question found expectations very clear.

Limits. Self-report may understate prohibited use. The study measures experiences and perceptions, not changes in writing ability or critical thinking; it does not represent K-12 students.

Leadership implication. State allowed assistance for each assignment, with concrete examples and disclosure expectations. Preserve a fair review process when authorship is questioned.

7. Mikhasenko et al., physics course case study, arXiv:2609.05719v1.
8. Kuznetsov et al., student writing study, Teaching Sociology.

Instruction and teacher control

9. Feedback that prompts student reflection

September 1, 2026 | Peer-reviewed qualitative study
University programming: indirect K-12 implications

Finding. Students described checking chatbot feedback, explaining their reasoning, and adapting learning strategies. They also reported unclear feedback and usability problems.[9]

Evidence. Researchers analyzed 38 written reflections and eight interviews about TaskInsighter, a Python-learning chatbot. Interviewees had used it throughout a 16-week semester.

Limits. Reported experiences do not establish learning gains or causation. The accessible abstract supports the summary; the full methods and results were restricted. The participants were university students.

Leadership implication. Evaluate whether a tutor elicits explanations, supports revision, and lets teachers inspect feedback. Student accounts provide a counterpoint to blanket claims that every AI interaction displaces thinking.

10. Teacher control in proposed learning apps

September 3, 2026 | Preprint: qualitative design analysis
Science-teacher development: no student outcomes

Finding. All four teacher-created app proposals specified meaningful evidence of student thinking. Only two explicitly described teacher authority, and only two named a safeguard.[10]

Evidence. Researchers examined four workshop artifacts, including science diagnostics and guided questioning. Artifacts are not a count of individual teachers.

Limits. No apps were implemented or tested with students. Omitted wording does not prove teachers disregarded safety. The working paper explicitly states it has not been peer reviewed.

Leadership implication. Before approving a teacher-built AI tool, specify the learning problem, student interaction, evidence returned, human decision rights, and protections. Use the proposal to review instructional intent and accountability together.

9. Hung and Pawitra, AI feedback study, Journal of Educational Computing Research.
10. Kadir et al., teacher app-design analysis, arXiv:2609.03917v1.

Sources and selection notes

Selection and interpretation

Eligible releases fall within August 31-September 6, 2026, inclusive. Dates use publisher first-online records, initial preprint postings, or dated institutional launches. New coverage of older studies is excluded. Selection weighs school decision relevance, methods, directness to K-12, and distinct findings; this is a curated brief, not an exhaustive systematic review. Leadership implications are analytical judgments. Peer review is a publication status, not a guarantee of causal evidence.

Source access is stated below. APA and UNICEF summaries use their public report pages and launch materials; the complete PDFs were not reviewed. Two journal entries rely on accessible abstracts, with the policy appendix also inspected.

1. American Psychological Association. Children's and adolescents' learning with educational technology. APA. September 3, 2026. Public report page; linked full PDF was not reviewed. Dated release.

2. Vera Rief, Mirella Hladký, Minju Yoo, Stephanie Heel, Shintaro Sato, and Tomohiro Nagashima. Beyond Problem Solving: Large Language Models for Emotional and Reflective Support in Mathematics Learning. arXiv:2609.02611v1. September 2, 2026. Open full text.

3. Iván Claudio Suazo Galdames, Meylin Santiesteban Velázquez, Mahia Saracostti, and Alain Manuel Chaple Gil. Between cognitive offloading and critical autonomy: a systematic review of the epistemic implications of generative AI in higher education. Frontiers in Education. September 3, 2026. Open full text.

4. Morning Consult, commissioned by IBM. AI Readiness in U.S. Schools. Morning Consult / IBM. September 2, 2026. Open report; methods on PDF page 2. Dated release.

5. Qurrat ul Ain Rasheed. Policy Landscape of Artificial Intelligence in K-12 Education: A Content Analysis of State-Level Policy Guidance Documents. Educational Policy, OnlineFirst. August 31, 2026. Abstract and appendix accessible; full text restricted.

6. UNICEF Innocenti. Through Children's Eyes: How digital technologies enable child sexual abuse. UNICEF. September 3, 2026. Publisher findings and methods summary reviewed; full report linked. Dated release.

7. M. Mikhasenko, M. Stahl, I. Segal, D. Parmar, A. Zimmer, and A. Kazatsky. AI in Particle Physics Education: Research Problems and Foundational Skills. arXiv:2609.05719v1. September 4, 2026. Open full text.

8. Anna Kuznetsov, Amanda Sheely, and Jayne Baker. Student Use of and Views on GenAI for Writing. Teaching Sociology, OnlineFirst. September 4, 2026. Open full text.

9. Hui-Chun Hung and Mahendra Astu Sanggha Pawitra. Exploring Students' Motivation and Self-Regulation in AI-Driven Feedback: A Qualitative Study of a Python Learning Chatbot. Journal of Educational Computing Research, OnlineFirst. September 1, 2026. Abstract accessible; full text restricted.

10. Nizam Kadir, Liow Wei Ting, Sumbul Khan, and Ang Lay Kee. From Misconceptions to Evidence: What Science Teachers Make Visible When Co-Designing Agentic Learning Apps. arXiv:2609.03917v1. September 3, 2026. Open full text; not a tested intervention.

Date exclusions

Examples excluded from the weekly selection: Ghosh et al., secondary-school AI literacy review (first published June 2); University of Delaware classroom guidance (August 31 article, but not a new original study or research report); Prieto and Dimitriadis, learner flourishing (September 7, outside the window).