AI Research Links

How to Cite AI Use

- *From Purdue https://guides.lib.purdue.edu/c.php?g=1371380&p=10135074*

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Teacher Use

Breaking Barriers: A Meta-Analysis of Educator Acceptance of AI Technology in Education (Nikolas McGehee, PhD, Michigan Virtual Learning Research Institute)

- The integration of technology in education has been a subject of debate and research for over a century, with educators' resistance to adoption persisting despite rapid technological advancements.
- Much like the resistance faced by calculators and computers in the past, AI is encountering similar skepticism and barriers to adoption.
- This literature review aims to conduct an extension of a meta-analysis of recent studies to identify key predictors of technology adoption among educators, with the goal of informing targeted training programs that address the strongest predictors of acceptance.
- Conclusions
    - Critical factors such as Self-Efficacy, Cost & Time, and the Required Pedagogical Shift emerged as highly influential in this meta-analysis.
    - AI tools often necessitate a fundamental rethinking of teaching strategies and classroom management. Teachers may resist because AI challenges traditional teaching practices.
    - Overcoming this will require not just technical training but support for pedagogical innovation.
    - Anxiety, a recurring theme in technology adoption, was another strong predictor of resistance. Educators expressed significant apprehension about the complexity and perceived risks of AI, particularly in relation to job displacement and the ethical challenges of AI in education, such as data privacy and bias.
    - Beyond these core factors, System Accessibility and Technological Complexity remain central barriers to AI adoption as teachers struggle with the perceived difficulty of navigating AI tools.
    - Overcoming these obstacles, much like with earlier innovations, will depend on creating user-friendly systems and reducing the perceived burden on teachers.
    - Addressing these factors, along with mitigating ethical concerns, reducing anxiety, and recognizing the constructive role of resistance, will be essential for overcoming barriers and ensuring that AI can effectively enhance educational practices.

Innovation of Instructional Design and Assessment in the Age of Generative Artificial Intelligence Charles B. Hodges & Paul A. Kirschner --

- Summary via Dr. Phillipa Hardman

    - The rise of AI tools like ChatGPT has sparked both enthusiasm and concern.
    - AI produces original written work nearly indistinguishable from human authors, disrupting traditional educational practices, particularly established methods of assessment.
    - Broader ethical concerns include accessibility of AI tools, the data they collect, the equity issues they perpetuate, and the environmental impact (power consumption).
    - However, the core problem is how instructional design for “learning experiences” - must evolve to address these challenges.
    - Educators must rethink instructional design and assessment to ensure genuine learning.
    - Several strategies are proposed, including emphasising the learning process over the final product, incorporating oral assessments, modifying assignments to be more specific and context-dependent, and using AI tools critically rather than passively.
    - The call to action is clear: education must shift its focus from traditional assessments that AI can easily complete to fostering critical thinking, creativity, and deep understanding.
- See Dr. Phil’s post Redesigning Instruction & Assessment in the Age of AI for her suggestions how.

The Past, Present, and Future Use of Artificial Intelligence in Teacher Education Free & Low-Cost Educator AI with Feedback for Use from Authors & AI Chatbots Dec. 2024 -- Maggie Mosher Ph.D. & Lisa Ann Dieker

- The article provides a comprehensive overview of AI’s impact on teacher education, covering topics such as teacher readiness, AI literacy, classroom applications, and future trends.
- **The article gives free resources on how AI supports teacher**s by streamlining administrative tasks while maintaining the essential human aspect of education.
- It also examines the shift from traditional teacher-centered instruction to AI-enhanced learning environments and universally designed measures of learning over traditional tests.

Using Artificial Intelligence Tools in K–12 Classrooms (RAND report)

- Fall 2023 survey where teachers reported how they use AI tools in their practices, and district leaders reported whether and how they are providing policies, guidance, and training on AI use.
- Key Findings:
    - 18% of K–12 teachers reported using AI for teaching, 15% tried AI at least once;
    - Middle & high school teachers, English & Social Studies teachers were more likely to use AI;
    - Among those teachers using AI for teaching, most used it weekly;
    - Most common uses were to adapt and generate content to fit the level of their students;
    - 60% of districts planned to train teachers about AI use; and
    - Leaders described focusing more on increasing teachers' AI use and less on crafting policies.

Student Use

From Common Sense Media: *The 2025 Common Sense Census: Media Use by Kids Zero to Eight*

- Key Findings from survey of 1578 parents in August 2024:
    - 40% of children have a tablet by age 2, and nearly 1 in 4 have a personal cellphone by age 8;
    - Screen time remains steady at about 2.5 hours per day
        - Gaming time surged 65% in four years, and traditional TV viewing has declined
        - Short-form video platforms like TikTok and YouTube Shorts are on the rise;
    - 30% of parents of kids ages 0-8 say their children have used AI for learning;
    - 40% of parents of kids ages 5-8 said their child used an app or a device with AI to learn;
    - 24% of children used AI for "creative content," like writing short stories or making art;
    - One in four parents of kids ages 0-8 report they are learning critical thinking skills using AI;

    - 61% of parents said their kids' use of AI had no impact on their critical thinking skills; and
    - 60% said there was no impact on their child's well-being.
- Press release and guides for parents to use.

Analyzing the Impact of AI Tools on Student Study Habits and Academic Performance

- This study explores the effectiveness of AI tools in enhancing student learning, specifically in improving study habits, time management, and feedback mechanisms.
- The research focuses on how AI tools can support personalized learning, adaptive test adjustments, and provide real-time classroom analysis.
- The study found a significant reduction in study hours alongside an increase in GPA, suggesting positive academic outcomes.
- Despite these benefits, challenges such as over-reliance on AI and difficulties in integrating AI with traditional teaching methods were also identified, emphasizing the need for AI tools to complement conventional educational strategies rather than replace them.
- Data were collected through a survey with a Likert scale and follow-up interviews, providing both quantitative and qualitative insights.

Does ChatGPT enhance student learning? A systematic review and meta-analysis of experimental studies

- While cross-sectional studies have highlighted correlations between ChatGPT use and learning performance, they fall short of establishing causality.
- This review examines a comprehensive search across five databases that identified 69 articles published between 2022 and 2024 for analysis.
- The findings reveal that overall, ChatGPT improves academic performance, affective-motivational states, and higher-order thinking propensities; it reduces mental effort and has no significant effect on self-efficacy.
- However, methodological limitations, such as the lack of power analysis and concerns regarding post-intervention assessments, warrant cautious interpretation of results.

Chegg Global Student Survey 2025

- Survey of nearly 12,000 undergraduate respondents across 15 countries
- Top 5 Global Takeaways
    - 80% of students say they have used GenAI to support their studies
    - 29% turn first to GenAI tools for help when stuck on a concept or assignment
    - 69% would like their curriculum to include training in AI tools
    - 58% rated their mental health as “good” or “excellent”
    - 70% would rather their university offer the choice of online learning if it lowered tuition
- Other conclusions by Government Tech
    - As students see AI growing more important in the future, they're calling for education-specific tools, AI training and workforce preparation.
    - In 2023, 50 percent told Chegg they were inputting one question a day or more. A year later, that number was up to 57 percent.
    - In 2023, only 10 percent turned to generative AI (GenAI) first when struggling with coursework. That number has now risen to 29 percent, surpassing traditional free online resources (24 percent) and peer support (15 percent).
    - The top-three improvements students sought in GenAI tools were AI solutions specific to academic needs, human involvement in generating answers and data privacy safeguards.

Other

The Great Online Learning Reset? *(Agentic AI from Dr. Phillipa Hardman)*

- A viral video showing agentic AI tools completing asynchronous training courses in minutes threatens traditional pedagogical assumptions and models - (see Tim Mousel LinkedIn post).
- Dr. Phil argues that the agentic AI problem isn't an integrity or security problem—it's a learning effectiveness problem.
- If an AI can "learn" your material without actually learning anything, what exactly are your human learners getting from the experience?
- AI agents have inadvertently exposed what most of us have known for decades: the traditional "content + quiz" model of asynchronous learning is fundamentally broken.
- READ MORE HERE

AI Search Has a Citation Problem

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The Impact of Artificial Intelligence in Enhancing Online Platform Effectiveness in Higher Education

- This study investigates the impact of AI on online learning system effectiveness in Jordanian higher education institutions.
- The research explores the relationships between AI features, system quality, information quality, service quality, user satisfaction, and platform effectiveness. The questionnaire was designed to measure the perceived impact of AI on various aspects of online learning.
- The findings revealed that AI has a significant positive impact on system quality, information quality, and service quality. AI-powered features can improve the technical aspects of the platform, enhance the quality of information, and provide better support services.
- Moreover, the study found a strong positive relationship between user satisfaction and platform effectiveness. Satisfied users were more likely to perceive the platform as effective, leading to improved learning outcomes and engagement.

Anthropic's Economic Index highlights AI augmenting mid-to-high salary jobs

- Usage of generative AI revolves around software development and technical writing tasks and users typically see the technology as way to augment and enhance humans, according to Anthropic's inaugural Economic Index report.
- Anthropic anonymized conversations on its Claude large language model (LLM) to highlight trends. High level findings of Anthropic's Economic Index include:
    - About 36% of occupations use AI in at least a quarter of their tasks. About 4% of occupations use it for three quarters of tasks.
    - 57% of AI use is augmentation relative to 43% focused on automation.
    - Mid-to-high wage occupations such as computer programmers and data scientists are using AI for tasks. Lowest and highest paid roles use AI the least.

The Impact of Gen AI on Human Learning: A Research Summary

- A literature review of the most recent & important peer-reviewed studies from Dr. Phillipa Hardman
- Conclusion
    - Current research overwhelmingly suggests that generic Gen AI tools do not just fail to advance human learning—they often actively hinder it. Across all five of the most recent studies on the topic, while tools like ChatGPT, Claude, and Gemini improve immediate task

performance, they also reduce cognitive engagement, critical thinking, and self-regulated learning (SRL).
    - However, the potential of AI to transform education remains huge *if* we shift toward structured and pedagogically optimised systems.
    - To unlock AI's transformative potential, we must prioritise learning processes over efficiency and outputs. This requires rethinking AI tools through a ***pedagogy-first*** lens, with a focus on fostering deeper learning and critical thinking.
    - Most current AI-ed products focus on speeding up tasks or driving user engagement, often at the expense of meaningful learning. We need to redefine "success" by focusing on metrics like knowledge acquisition, skill growth, and behavioural change rather than speed, accuracy, or user love.
- Without the necessary pedagogical safeguards to optimise the design and delivery of AI-powered learning, generic AI could negatively impact human learning by fostering over-reliance, diminishing critical thinking and reducing engagement in self-regulated learning (SRL).
- On the flip side, if we take a "pedagogy first" approach to building AI models and products, the impact of AI on human learning could be exponentially positive.

Embracing AI in Education: Understanding the Surge in Large Language Model Use by Secondary Students

- A survey of over 300 middle and high school students [*in the US in 43 states*]
- 70% of students have utilized LLMs, higher than the usage percentage among young adults, and this percentage remains consistent across 7th to 12th grade.
- The survey feedback called for LLMs better adapted for students, and also raised questions to developers and educators on how to help students from underserved communities leverage LLMs' capabilities for equal access to advanced education resources.