



Hampshire
County Council

Improvement and
Advisory Service

AI: A slice of research

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AI Use is changing spoken language

Methodology 360,445 YouTube academic talk transcripts and 771,561 podcast transcripts examined. Looking for change in language features before and after introduction of ChatGPT

- Top words that LLM AI prefers (delve, comprehend, boast, swift, meticulous) up to 50% more used in speech
- Domains more exposed to AI such as STEM increased more
- Domains less exposed (RE and PE) no significant increase
- May erode linguistic diversity
- May reduce linguistic barriers for non-native speakers
- “cultural feedback loop” where humans teach machines, and machines shape humans

Boosting **Primary** Pupils' Motivation with AI Personalised Maths Tasks

Methodology Use AI to tailor maths questions to pupils specific interests. 114 Y5 pupils in two groups. Researchers measured: Motivation, Interest, and Maths performance.

- Pupils given AI-personalised content felt more motivated
- Higher interest and better performance were associated with personalised tasks
- More specific interests, such as a particular sports person, created stronger engagement than vague ones, like sports.
- There was a claim that motivation continued over time, but I was unable to see this from the research

Subject specific AI introduction increases AI adoption (**secondary**)

Methodology 41 chemistry teachers half given feature based intro to AI other half given chemistry specific intro examples

- Teachers are more likely to trust and use AI tools when explanations are written in subject-specific language
- Schools introducing AI should not expect immediate acceptance. Teachers need time, training, and appropriate language to develop trust.
- AI that fits into a teacher's workload and pedagogy is far more likely to be used.
- Suggests that a cascade approach can be very successful

AI Teacher Assistants: Productivity at a Price?

Methodology real world prompt testing using Khanmigo, MagicSchool, Curipod, and Google Gemini, evaluating educational outcomes, bias, safety by Common Sense Media

- **Racial and Gender Bias in Behavioural Recommendations**
 - Behaviour suggestions differ based on racially-coded names, with Black
 - students receiving harsher, less collaborative advice.
- **AI Assistants Can Undermine Curriculum Coherence**
 - If you are going to use AI planning tools, make sure you start with your current curriculum for it to build on.
- **AI Assistants can introduce bias or stereotypes**
 - AI-generated content may subtly introduce bias or present historical misinformation.

Can AI be used to mentor teachers?

Methodology Can AI give feedback as well as expert human mentors in simulated teacher training. compared the ability of AI and human experts to identify teaching strengths, weaknesses, and opportunities for improvement

- Tended to over-credit superficial mentions of key terms as evidence of CK.
- Often praised any kind of discussion as good PCK, even when it was poorly managed.
- Missed key issues like uneven engagement, conflict management, or dominance by loud students.
- The AI was not trained on expert human analysis

Has ChatGPT Sparked a Cheating Revolution?

Methodology researchers analysed anonymous survey data from three US high schools (Age 14-18), comparing data collected before and after the release of ChatGPT.

- A similar percentage of students who would copy someone else's assignment would do so after the advent of AI.
- Paraphrasing or copying a few sentences of material from a written source without referencing/citing it in a paper or on a project stayed broadly the same.
- There was an increase in the use of electronic unauthorised aids, which could include AI during an assessment
- This research was Conducted at a very early stage in the Generative AI rollout

Is AI Eroding Our Brains? Uncovering the Hidden Cognitive Costs of Using ChatGPT for Writing

Methodology three groups: Brain-only with no external support, Search-Engine-only, and AI-only. Researchers measured brain activity using EEG as well as analysing writing using AI techniques. Humans and AI marked each essay.

- **AI-only usage significantly reduced neural connectivity and cognitive engagement compared to the Brain-only and Search-Engine-only group**
- **AI-only students had less ownership towards their work and found it more challenging to recall or quote from their writing when interviewed.**
- **There are many stages to writing a good essay. Could AI be more useful in some stages than others? Could AI involvement be more useful to some students in some stages than others**

Access full research via Moodle+

- <https://computing.hias.hants.gov.uk/course/view.php?id=36>
- You will need Moodle+ Access to read these

Any questions?

Your feedback matters



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Thank you!