

Generative AI and academic writing

Issues and opportunities

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@sharplm

Generative AI

A threat to education?

Or a universal tutor?

FORBES > LEADERSHIP > LEADERSHIP STRATEGY

ChatGPT: A Threat To Higher Education?

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GPT-4

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It can interpret text and images

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MI

explain string theory in 200 words for an 11-year-old child



String theory is an idea in science that says that everything in the universe is made up of tiny little strings that vibrate. These strings are so small that you can't see them even with a really powerful microscope.

Scientists think that these strings are what make up all the different parts of the universe. So instead of there being lots of different particles like quarks and lots of different forces like gravity and electromagnetism, there are just strings that vibrate in different ways.

It's like how different vibrations of a string on a guitar create different notes.

String theory doesn't know yet about some of the mysteries of the universe.

User

Answer question I.1.a. Think step-by-step.

I. Principe de la détection de rayonnement avec un bolomètre

Comme illustré sur la figure 1 un bolomètre est constitué d'un absorbeur qui reçoit le rayonnement que l'on désire détecter. Sa température T , supposée uniforme, est mesurée à l'aide d'un thermomètre incorporé, constitué d'un matériau conducteur dont la résistance $R(T)$ varie avec la température T ; cette variation est caractérisée par le coefficient $\alpha = \frac{1}{R} \frac{dR}{dT}$. L'ensemble possède la capacité thermique C_{th} .

Un barreau, conducteur thermique, homogène, de longueur L , de section S et de conductivité thermique λ et sans échanges thermiques latéraux, relie le bolomètre à un thermostat de température T_b fixe.

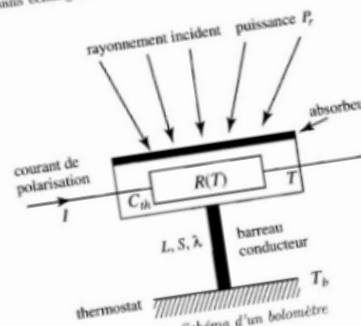


Figure 1 - Schéma d'un bolomètre

I.1. Dans cette première partie, on étudie le comportement du bolomètre en régime stationnaire, à la température de fonctionnement $T = T_b$.

I.1.a) Exprimer la température $T(x)$ en tout point du barreau conducteur repéré par son abscisse x ; on prendra $T(0) = T_0$ et $T(L) = T_b$.

GPT-4

To answer question I.1.a, we need to express the temperature $T(x)$ in every point of the conductive bar, which is characterized by the abscissa x . We are given that $T(0) = T_0$ and $T(L) = T_b$.

For a stationary regime, the heat equation for the one-dimensional heat conduction in the bar is $d^2T/dx^2 = 0$

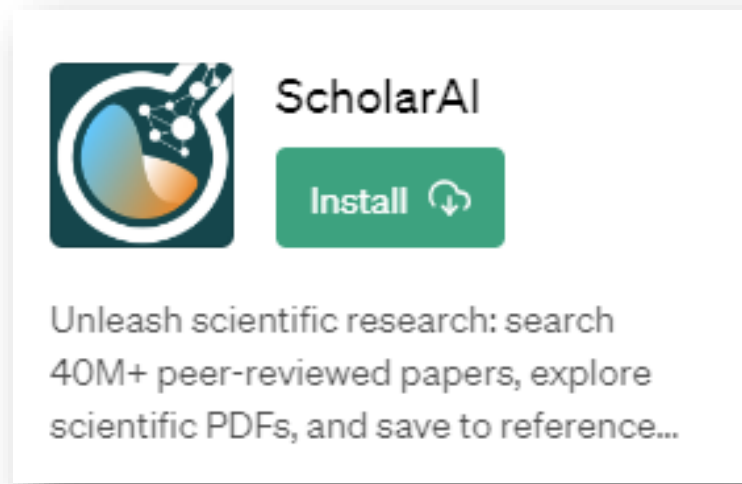
Integrating once, we get: $dT/dx = C_1$

ChatGPT Plus

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Integration with web browser

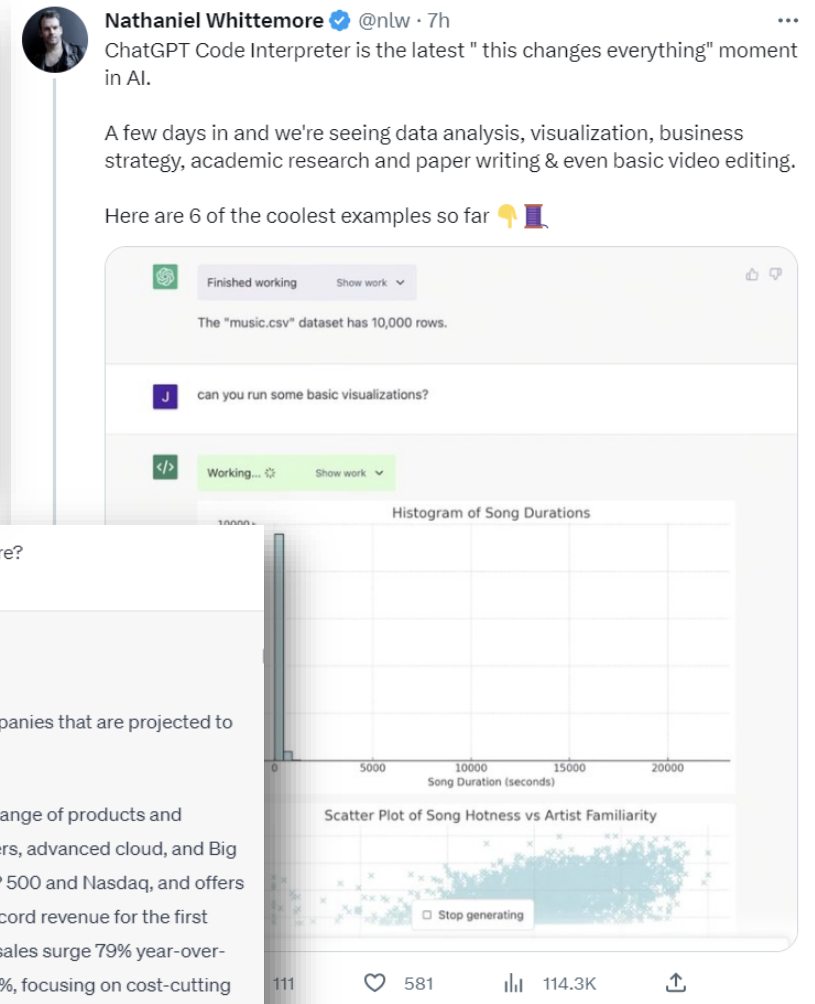
Code interpreter to run and display Python programs



ScholarAI

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Install



Nathaniel Whittemore @nlw · 7h
ChatGPT Code Interpreter is the latest "this changes everything" moment in AI.

A few days in and we're seeing data analysis, visualization, business strategy, academic research and paper writing & even basic video editing.

Here are 6 of the coolest examples so far 🗨️ 📄

Finished working Show work

The "music.csv" dataset has 10,000 rows.

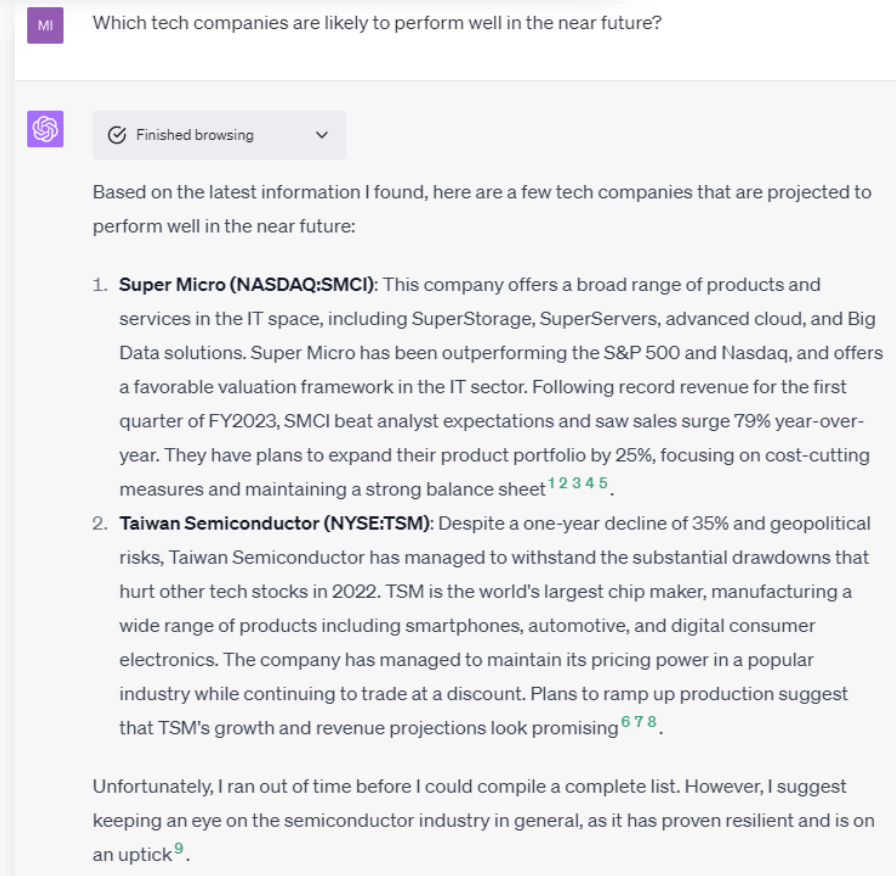
J can you run some basic visualizations?

Working... Show work

Histogram of Song Durations

Scatter Plot of Song Hotness vs Artist Familiarity

111 581 114.3K



MI Which tech companies are likely to perform well in the near future?

Finished browsing

Based on the latest information I found, here are a few tech companies that are projected to perform well in the near future:

- Super Micro (NASDAQ:SMCI):** This company offers a broad range of products and services in the IT space, including SuperStorage, SuperServers, advanced cloud, and Big Data solutions. Super Micro has been outperforming the S&P 500 and Nasdaq, and offers a favorable valuation framework in the IT sector. Following record revenue for the first quarter of FY2023, SMCI beat analyst expectations and saw sales surge 79% year-over-year. They have plans to expand their product portfolio by 25%, focusing on cost-cutting measures and maintaining a strong balance sheet^{1 2 3 4 5}.
- Taiwan Semiconductor (NYSE:TSM):** Despite a one-year decline of 35% and geopolitical risks, Taiwan Semiconductor has managed to withstand the substantial drawdowns that hurt other tech stocks in 2022. TSM is the world's largest chip maker, manufacturing a wide range of products including smartphones, automotive, and digital consumer electronics. The company has managed to maintain its pricing power in a popular industry while continuing to trade at a discount. Plans to ramp up production suggest that TSM's growth and revenue projections look promising^{6 7 8}.

Unfortunately, I ran out of time before I could compile a complete list. However, I suggest keeping an eye on the semiconductor industry in general, as it has proven resilient and is on an uptick⁹.

Generative AI hallucinates

It doesn't "know" it shouldn't invent
research studies,

it has no explicit model of how the world
works,

and is amoral.


**It is a language model, *not* a
database or reasoning system**


Limitations

Despite making significant progress, our InstructGPT models are far from fully aligned or fully safe; they still generate toxic or biased outputs, make up facts, and generate sexual and violent content without explicit prompting. But the safety of a machine learning system depends not only on the behavior of the underlying models, but also on how these models are deployed. To support the safety of our API, we will continue to review potential applications before they go live, provide content filters for detecting unsafe completions, and monitor for misuse.

<https://openai.com/blog/instruction-following/>

You are a student on a Master of Education course. Write a high quality 500 word essay on essay A Critique of Learning Styles". The essay should include academic references and evidence from research studies. It should begin "The construct of 'learning styles' is problematic because"

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 The construct of 'learning styles' is problematic because it assumes that learners have distinct and consistent preferences for acquiring and processing information. This idea has gained popularity among educators and trainers, but there is little evidence to support the existence of such a fixed and reliable construct. Furthermore, promoting the use of learning styles in education may lead to harmful practices and prevent learners from developing skills and abilities that are essential for success in the 21st century.

One of the main issues with the concept of learning styles is the lack of empirical evidence to support it. A systematic review of studies investigating the relationship between learning styles and academic achievement found little to no evidence of a correlation between the two (Pashler et al., 2008). In fact, the review concluded that teaching according to learning styles might actually be detrimental to learning outcomes. Similarly, a recent meta-analysis of studies exploring the effectiveness of learning styles interventions also found little support for the idea (Rohrer & Pashler, 2012). The lack of empirical support for the concept of learning styles undermines the notion that individuals have consistent and reliable preferences for acquiring and processing information.

Another problem with the use of learning styles in education is that it may encourage fixed mindsets and discourage the development of essential skills and abilities. According to the theory of growth mindsets, learners who believe that their intelligence and abilities are malleable are more likely to embrace challenges, persist in the face of setbacks, and ultimately achieve higher levels of success (Dweck, 2006). In contrast, the use of learning styles may encourage learners to see their abilities as fixed and unchangeable, leading to a belief that they are limited in their capacity to learn in certain ways. This can be particularly damaging for learners who may not have been exposed to certain ways of learning or who may have been discouraged from pursuing certain subjects or activities due to their perceived learning style.

Finally, the use of learning styles in education may lead to harmful practices such as tracking

A Critique of Learning Styles

ChatGPT – November 2022

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Finally, the use of learning styles in education may lead to harmful practices such as tracking and labeling students. In tracking, learners are sorted into groups based on their perceived learning style, which can reinforce stereotypes and limit opportunities for growth and exploration (Gurung, 2004). Labeling students according to their learning style can also be harmful, as it may encourage teachers and learners to focus on weaknesses rather than strengths and may stigmatize learners who do not fit neatly into a particular category.

In conclusion, the construct of learning styles is problematic because it lacks empirical support, may discourage the development of essential skills and abilities, and can lead to harmful educational practices such as tracking and labeling. As educators, it is important to recognize the limitations of learning styles and instead focus on evidence-based practices that promote learning and growth for all learners, regardless of their perceived learning style.

References:

Dweck, C. (2006). *Mindset: The new psychology of success*. Random House.

Gurung, R. (2004). Black and white thinking about learning styles: A response to the Journal of College Reading and Learning. *Journal of College Reading and Learning*, 34(2), 7-17.

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Invented
research
study

Fake
academic
paper

The construct of 'learning styles' is problematic because it implies a static and narrowly defined approach to the way individuals process information. Despite the widespread popularity of this concept, there is a lack of empirical evidence to support the effectiveness of learning styles in enhancing educational outcomes. This section explores the origins of learning styles theory by examining its origin, research evidence, and implications for educators.

GPT-4 – March 2023

The concept of learning styles has its roots in the work of Dunn and Dunn (1978), who posited that students have different preferred ways of processing information. Their model included visual, auditory, reading/writing, and kinesthetic modalities. The VARK model (Fleming, 2001) expanded upon this idea, adding the reading/writing preference as a fourth category. Other models, such as Kolb's (Kolb, 1984) and Gardner's theory of multiple intelligences (Gardner, 1983), further contributed to the proliferation of learning styles theories in education.

Despite the intuitive appeal of these theories, numerous research studies have consistently failed to support the effectiveness of learning styles in improving educational outcomes. For instance, a meta-analysis conducted by Pashler et al. (2008) found insufficient evidence to support the idea that tailoring instruction to students' learning styles resulted in improved learning. Similarly, a review by Coffield et al. (2004) identified more than 70 learning styles models and concluded that there was little scientific evidence to support the use of any of them in practice.

One of the primary criticisms of learning styles is the lack of a clear and consistent definition of what constitutes a learning style (Coffield et al., 2004). This has led to the proliferation of multiple, often contradictory, models that make it difficult to operationalize and test the theory. Furthermore, many of the assessments used to determine students' learning styles have been found to lack reliability and validity (Kirschner & van Merriënboer, 2013), further casting doubt on the utility of this concept in educational settings.

Another issue with learning styles is the oversimplification of the learning process. By categorizing students into distinct learning styles, the theory disregards the complex and dynamic nature of human cognition (Kirschner & van Merriënboer, 2013). In reality, learners are not limited to a single mode of processing information, and the effectiveness of a particular learning approach may vary depending on the context and the specific task at hand (Willingham, 2009).

Moreover, the focus on learning styles may inadvertently encourage teachers to limit their instructional methods, potentially hindering the development of a diverse repertoire of cognitive skills in students (Riener & Willingham, 2010). Instead of catering to specific learning styles, researchers have argued that teachers should emphasize the use of evidence-based instructional strategies that are effective across a wide range of learners, such as spaced repetition, retrieval practice, and elaboration (Dunlosky et al., 2013).

In conclusion, the concept of learning styles is problematic due to its lack of empirical support, inconsistent definitions, and oversimplification of the learning process. Rather than relying on this flawed theory, educators should focus on adopting evidence-based instructional strategies that promote learning for all students. Ultimately, fostering a diverse set of cognitive skills and flexible thinking will better prepare learners for the complex and dynamic challenges they will face in their lives.

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- Coffield, F., Moseley, D., Hall, E., & Ecclestone, K. (2004). Learning styles and pedagogy in post-16 learning: A systematic and critical review. Learning and Skills Research Centre.
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- Fleming, N. D. (2001). Teaching and learning styles: VARK strategies. Christchurch, New Zealand.
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- Riener, C., & Willingham, D. (2010). The myth of learning styles. *Change: The Magazine of Higher Learning*, 42(5), 32-35.
- Willingham, D. T. (2009). Why don't students like school? A cognitive scientist answers questions about how the mind works and what it means for the classroom. Jossey-Bass.

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The construct of "learning styles" is problematic because it implies that an individual student's learning methods are fixed and static, which is not supported by empirical research. This essay will critically evaluate the concept of learning styles in order to illustrate why it has become an increasingly contentious subject among educators and psychologists. The idea of "learning styles" was first introduced in the 1970s, when advocates argued that different students learn best using different methods (McKay & Bainbridge, 2018). For example, some students may learn best through visual teaching tools such as diagrams or charts, while others may prefer auditory approaches such as lectures. Over time, this concept has been further refined and divided into more specific categories such as visual-spatial learners or auditory-verbal learners (Hattie & Yates, 2013). Despite its popularity among educators, research into the validity of learning styles has been inconclusive. Some studies have found that providing instruction tailored to a student's preferred learning style can improve academic performance (Kavale & Forness, 2000), while others have failed to find any significant benefit (Pashler et al., 2008). Moreover, recent meta-analyses have found no evidence for any reliable relationship between learning styles and academic performance (Pashler et al., 2008; Coffield et al., 2004). In addition to lacking empirical support from research studies, the concept of learning styles can also be criticized on

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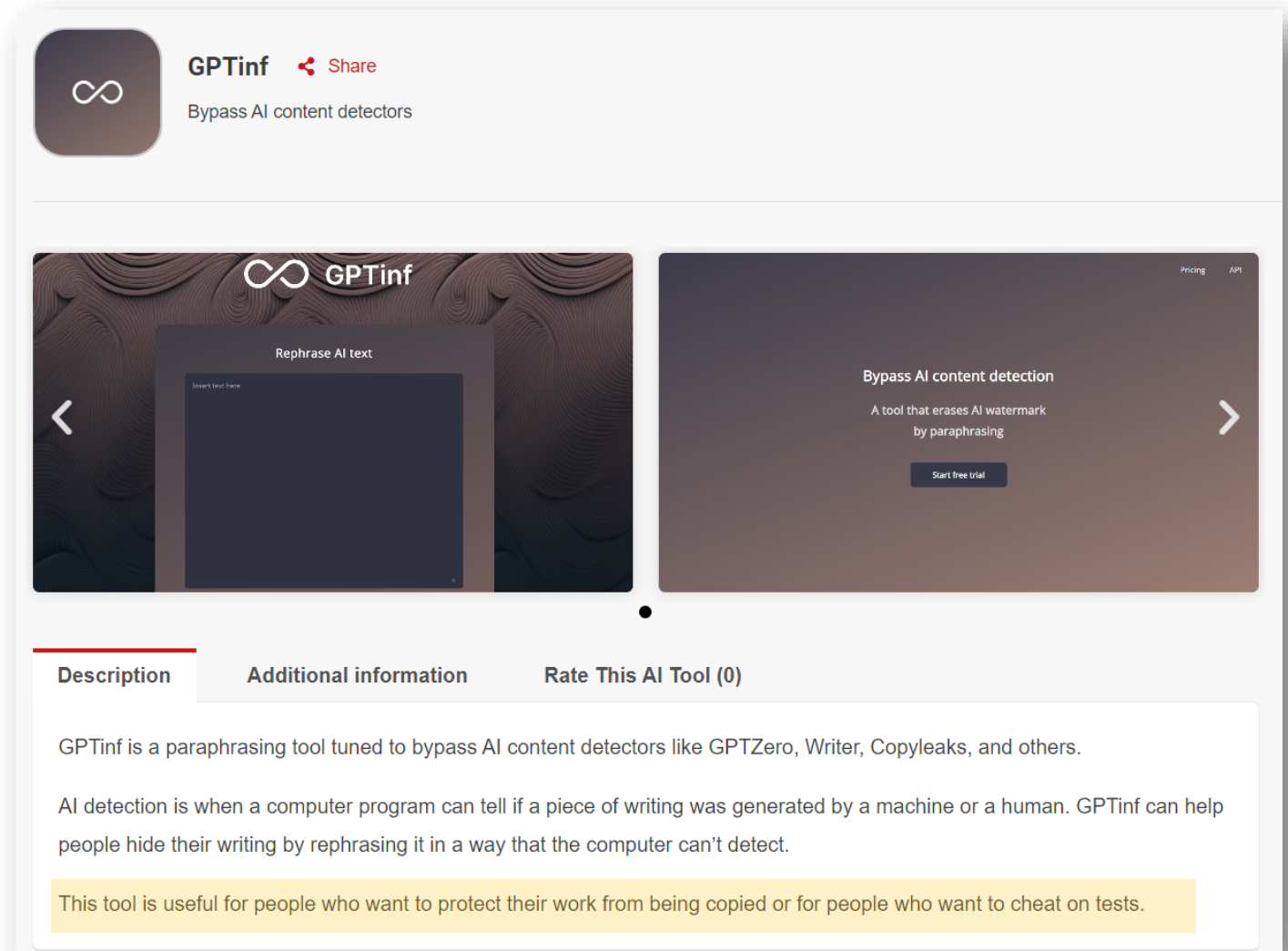
AI watermarking

Intended to help detect whether a text has been written by AI

ChatGPT inserts words from an internal “greenlist” at greater frequency that would be used by a human

Could be defeated by programs that paraphrase the text to remove the greenlisted words

Students use AI generators, institutions use AI detectors, students avoid AI detectors. Nobody learns, nobody gains – except the companies that harvest data.



The screenshot displays the GPTInf website. At the top left is the GPTInf logo (an infinity symbol) and the text "GPTInf" with a "Share" button. Below this is the tagline "Bypass AI content detectors". The main content area features two panels: the left panel shows a "Rephrase AI text" interface with a text input field, and the right panel shows a landing page for "Bypass AI content detection" with a "Start free trial" button. Below the panels are three tabs: "Description", "Additional information", and "Rate This AI Tool (0)". The "Description" tab is active and contains the following text: "GPTInf is a paraphrasing tool tuned to bypass AI content detectors like GPTZero, Writer, Copyleaks, and others. AI detection is when a computer program can tell if a piece of writing was generated by a machine or a human. GPTInf can help people hide their writing by rephrasing it in a way that the computer can't detect." A yellow highlighted box at the bottom of the description contains the text: "This tool is useful for people who want to protect their work from being copied or for people who want to cheat on tests."

Ban

Confident students will continue to use AI and will challenge decisions based on AI detectors.

Evade

Invigilated exams are costly and limited.

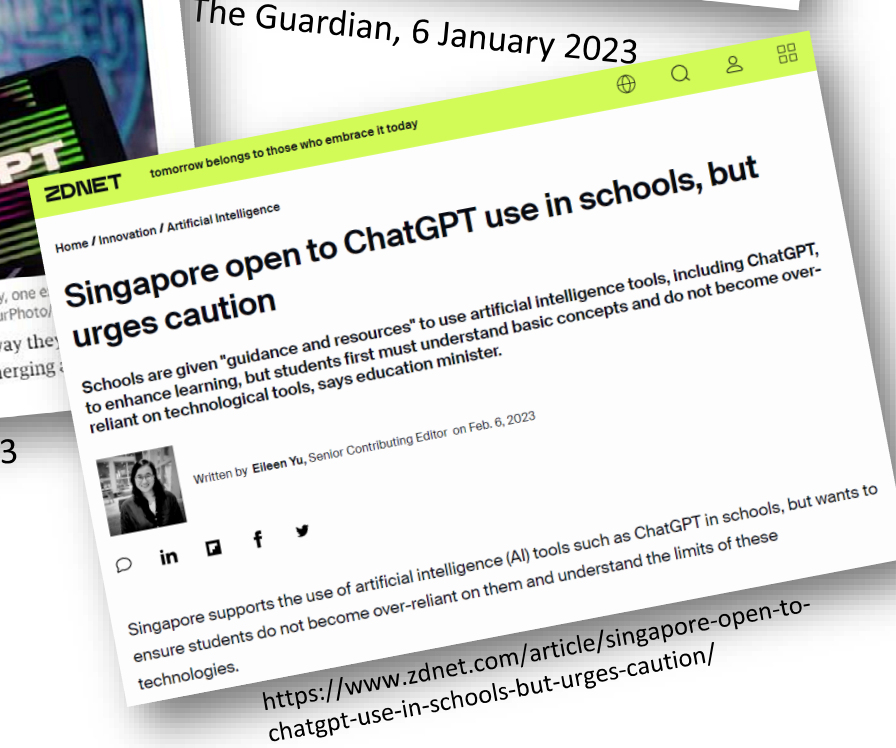
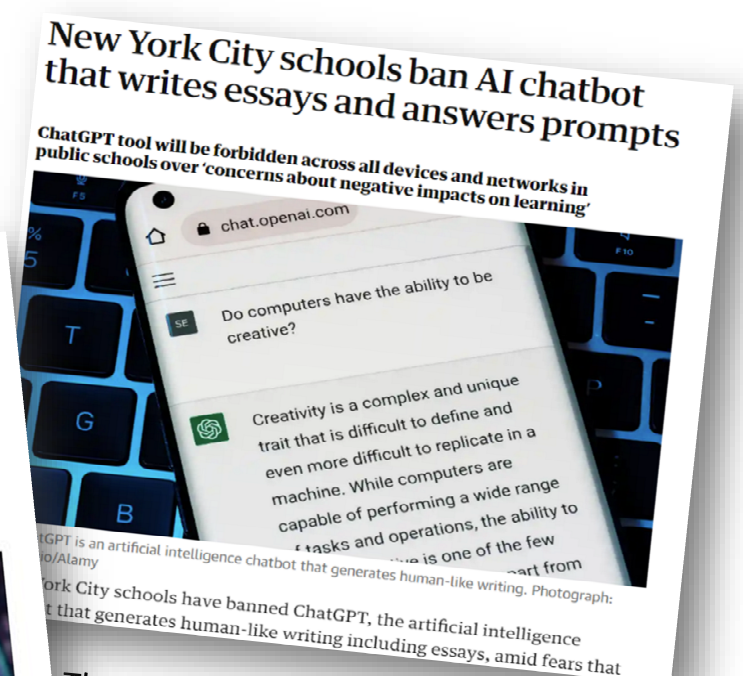
Asking students to state when they use AI will become increasingly difficult

Adapt

Requires new methods of assessment, new policies and guidelines

Embrace

Involves a long process of building trust



Emerging policy and strategy

Amend written assessments to make them harder for AI to generate

Move to more **authentic assessments**, such as project work

Establish guidelines for students and staff in use of generative AI

Reassure and engage students in developing strategies for effective learning

Explain to students how they should **acknowledge use of generative AI** in assignments

Manage suspected breaches of guidelines

Consider redesigning assessment for the next academic year to incorporate AI and develop critical thinking

Sample Policy Statements about Text Generators

- ["Artificial Intelligence Policy in Secondary Schools"](#) by Leon Furze, including a template
- ["Considerations on wording when creating advice or policy on AI use"](#) by Michael Webb, February 14, 2023
- ["Association for Computational Linguistics \(ACL\) 2023 Policy on AI Writing Assistance"](#)
- ["Classroom Policies for AI Generative Tools,"](#) curated by Lance Eaton
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<https://tinyurl.com/y7z4fac4>

AI Text Generators: Sources to Stimulate Discussion Among Teachers,
compiled by Anna Mills

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AI Text Generators: Sources to Stimulate Discussion Among Teachers,
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Flip the narrative from

“How will AI impact education?”

to

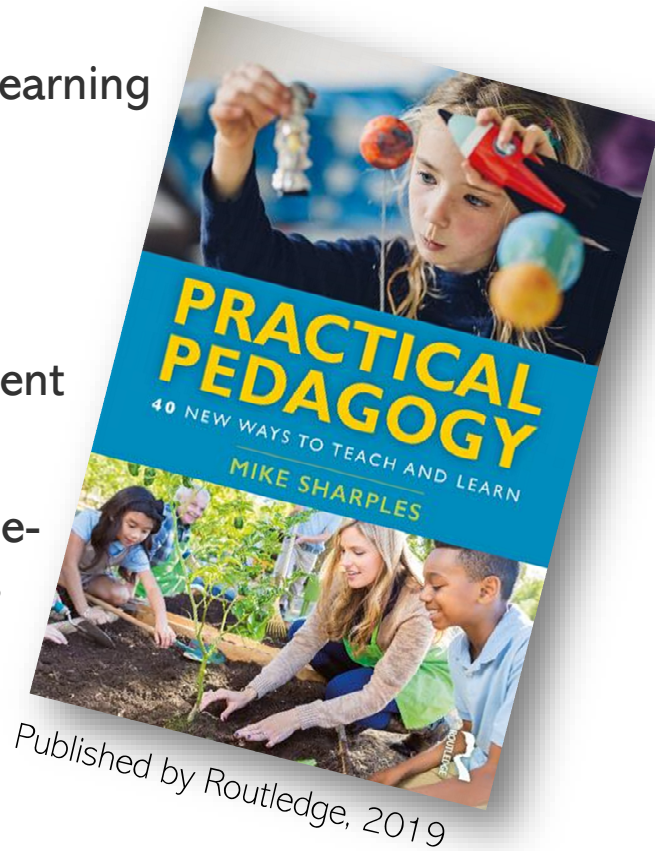
“What are new and effective ways to teach and learn with AI?”

Every powerful pedagogy could be augmented by AI

Adaptive teaching
Spaced learning
Personal inquiry
Dynamic assessment
Stealth assessment
Translanguaging
Crossover learning
Seamless learning
Incidental learning
Learning from gaming
Geo-learning
Learning through social media
Navigating post-truth societies

Explore first
Teachback
Learning through argumentation
Computational thinking
Learning from animations
Learning to learn
Assessment for learning
Formative analytics
Threshold concepts
Learning through storytelling
Learning in remote labs
Context-based learning
Event-based learning
Learning for the future

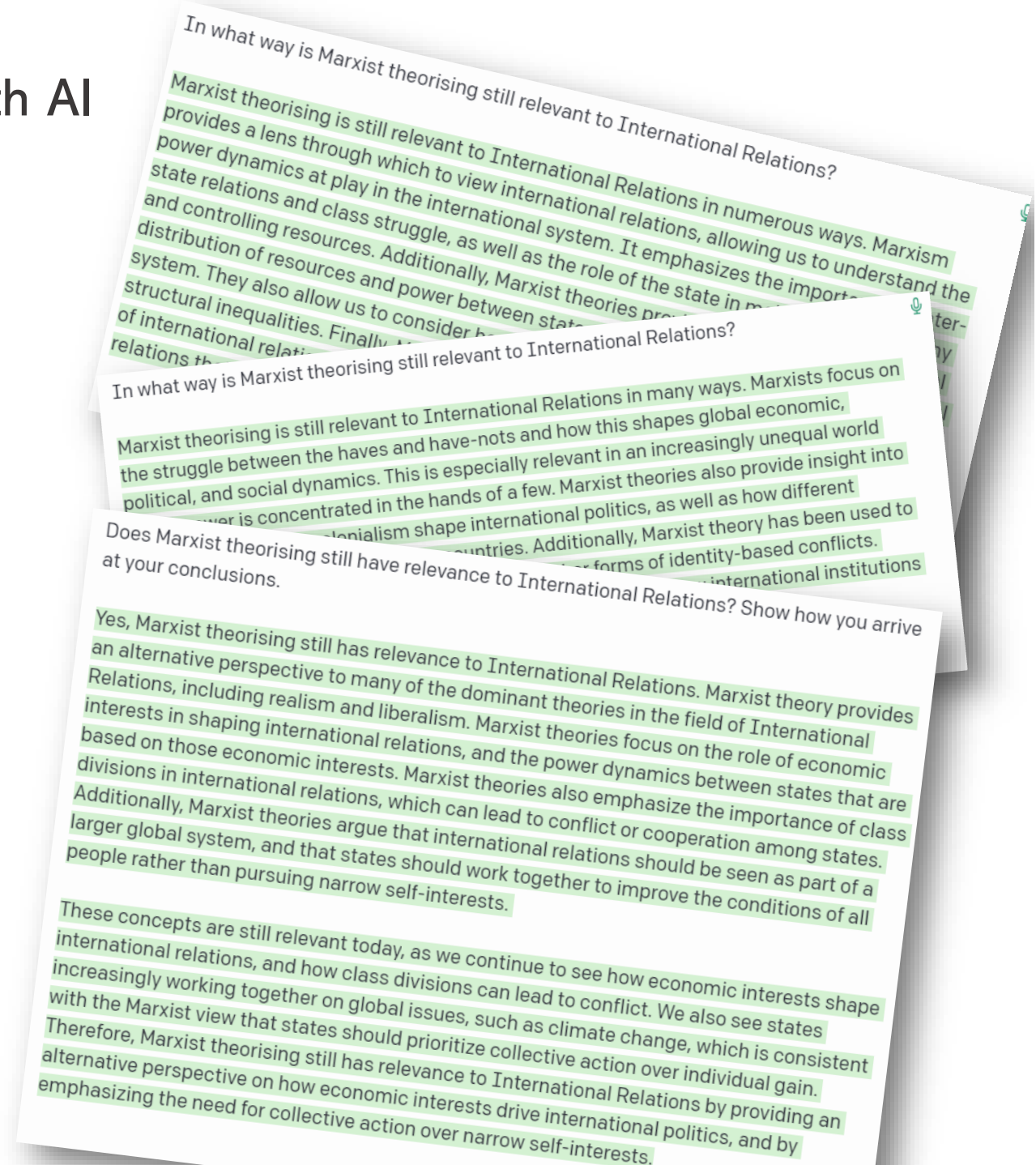
Embodied learning
Immersive learning
Maker culture
Bricolage
Massive open social learning
Crowd learning
Citizen inquiry
Rhizomatic learning
Reputation management
Open pedagogy
Humanistic knowledge-building communities



New ways of teaching and learning with AI

Possibility Engine

Educator or student uses AI to generate multiple responses to an open question. Each student synthesises and critiques the AI responses, to create their own written answer.



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Socratic Opponent

In an individual or group activity, students engage with ChatGPT in a Socratic dialogue, then each student writes an argumentative essay.



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Exploratorium

Students explore language by generating games and quizzes.

M You are a teacher of English for Academic Purposes. I would like you to invent a language game for adult students of English. The game should be for two players - students and yourself (ChatGPT). It should be interactive and fun, and it should help students to learn academic English sentences. Please first give the rules, using language appropriate to a student of English, then we can try playing the game according to the rules.

Game Name: Construct & Dissect

Objective: The aim of this game is to improve your understanding of academic English sentences by building them together and then dissecting them to understand their parts.

Players: You (the Student) and me (ChatGPT, your AI tutor)

Gameplay: The game has two parts: 'Construct' and 'Dissect'.

1. Construct

- You will start the game. Choose a word or phrase related to your field of study.
- I will then use that word or phrase to construct an academic English sentence.
- Your task is then to extend that sentence by adding another relevant academic phrase or clause. The challenge is that your addition should be grammatically correct and logically connected to the previous sentence.
- We will continue adding to the sentence in turns, building it into a complex, academic English sentence.

2. Dissect

- Once we have constructed a long sentence, we will dissect it together.
- I will identify and explain each part of the sentence (subject, predicate, objects, clauses, phrases, connectors, etc.), helping you understand how they work together to form the sentence.
- You will then try to paraphrase the sentence, keeping its academic tone but simplifying its structure. This will help you understand the sentence's meaning and improve your ability to write complex ideas in simpler sentences.

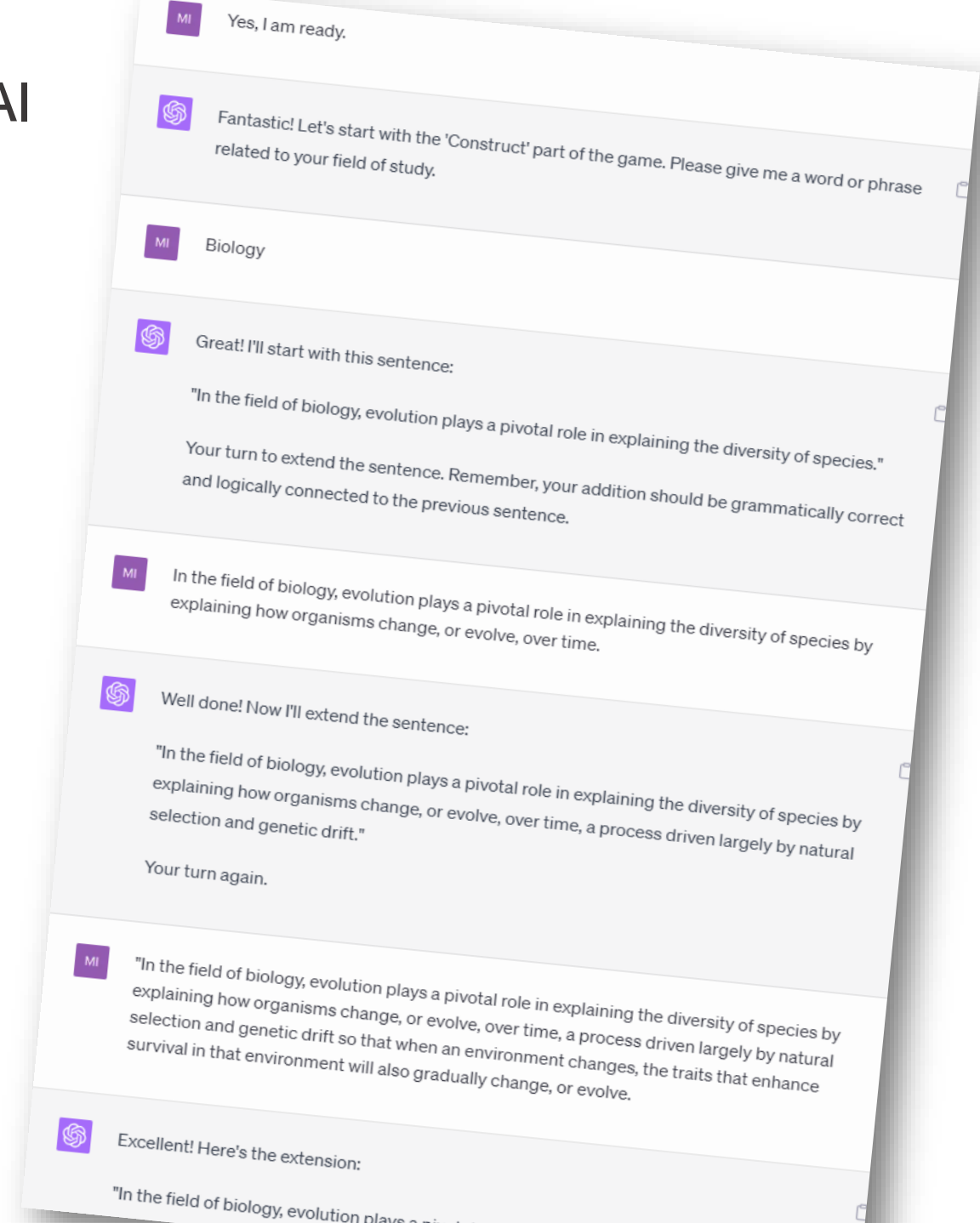
Important Note: Remember, the primary goal is to learn and have fun. Don't worry about making mistakes. We'll correct and learn from them!

Are you ready to start the game?

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In the field of biology, evolution plays a pivotal role in explaining the diversity of species by explaining how organisms change, or evolve, over time, a process driven largely by natural selection and genetic drift so that when an environment changes, the traits that enhance survival in that environment will also gradually change, or evolve.



Excellent! Here's the extension:

"In the field of biology, evolution plays a pivotal role in explaining the diversity of species by explaining how organisms change, or evolve, over time, a process driven largely by natural selection and genetic drift so that when an environment changes, the traits that enhance survival in that environment will also gradually change, or evolve, leading to the emergence of new species, while others may become extinct."

That's quite a long sentence! Let's now move to the 'Dissect' part of the game.

Dissection:

1. Subject: "Evolution"
2. Verb (plays): linking the subject to the rest of the sentence.
3. Object: "a pivotal role"
4. Prepositional phrase (in explaining the diversity of species): provides additional details about the role evolution plays.
5. Relative clause (by explaining how organisms change, or evolve, over time): provides additional details about how evolution works.
6. Independent clause (a process driven largely by natural selection and genetic drift): gives further information about evolution.
7. Dependent clause (so that when an environment changes, the traits that enhance survival in that environment will also gradually change, or evolve): shows cause and effect relationship.
8. Independent clause (leading to the emergence of new species, while others may become extinct): provides an outcome of the earlier process.

Now, your turn. Try to paraphrase the sentence, keeping its academic tone but simplifying its structure.

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MI

Evolution is important to explain why species are diverse. Organisms make their change in time. When environment change new species come.



Great effort! Let's refine it a bit to keep the academic tone and clarity:

"Evolution is crucial in biology for explaining species diversity. It describes how organisms adapt over time. As the environment changes, this evolutionary process can lead to the emergence of new species."

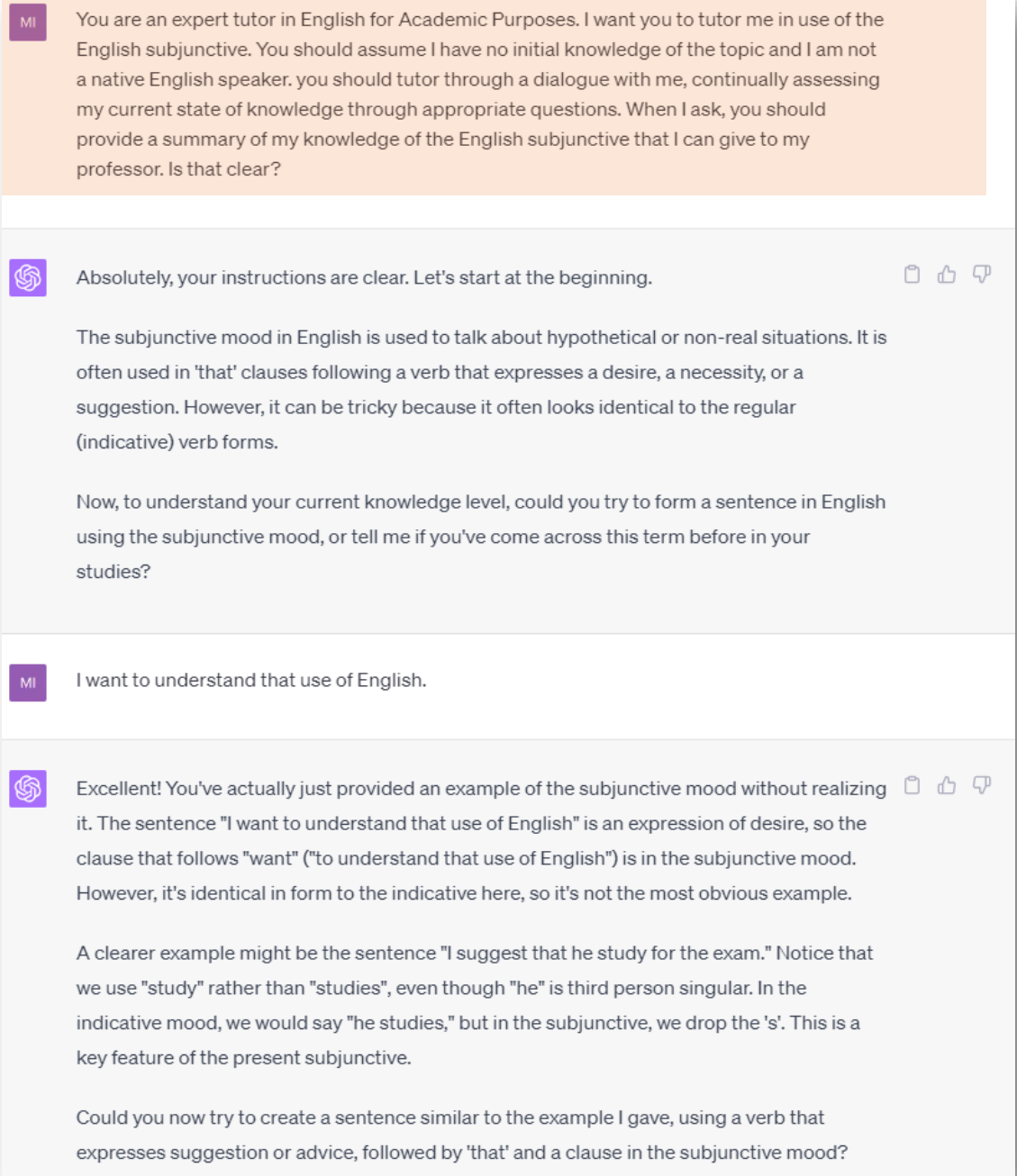
Remember, paraphrasing is about capturing the same meaning in different words and structures, while maintaining the original tone and context.

Would you like to play another round or do you have any questions about the game?

New ways of teaching and learning with AI




Personal Tutor

Students have a personal tutor for any topic.



The screenshot displays a chat interface with a light orange header for the user's message and light gray background for the AI's responses. The user's message is on the left, and the AI's responses are on the right. The AI's responses include a greeting, an explanation of the subjunctive mood, a request for a sentence example, a confirmation of the user's example, a clearer example, and a final question.




MI You are an expert tutor in English for Academic Purposes. I want you to tutor me in use of the English subjunctive. You should assume I have no initial knowledge of the topic and I am not a native English speaker. you should tutor through a dialogue with me, continually assessing my current state of knowledge through appropriate questions. When I ask, you should provide a summary of my knowledge of the English subjunctive that I can give to my professor. Is that clear?

MI Absolutely, your instructions are clear. Let's start at the beginning.   

The subjunctive mood in English is used to talk about hypothetical or non-real situations. It is often used in 'that' clauses following a verb that expresses a desire, a necessity, or a suggestion. However, it can be tricky because it often looks identical to the regular (indicative) verb forms.

Now, to understand your current knowledge level, could you try to form a sentence in English using the subjunctive mood, or tell me if you've come across this term before in your studies?

MI I want to understand that use of English.

MI Excellent! You've actually just provided an example of the subjunctive mood without realizing it. The sentence "I want to understand that use of English" is an expression of desire, so the clause that follows "want" ("to understand that use of English") is in the subjunctive mood. However, it's identical in form to the indicative here, so it's not the most obvious example.   

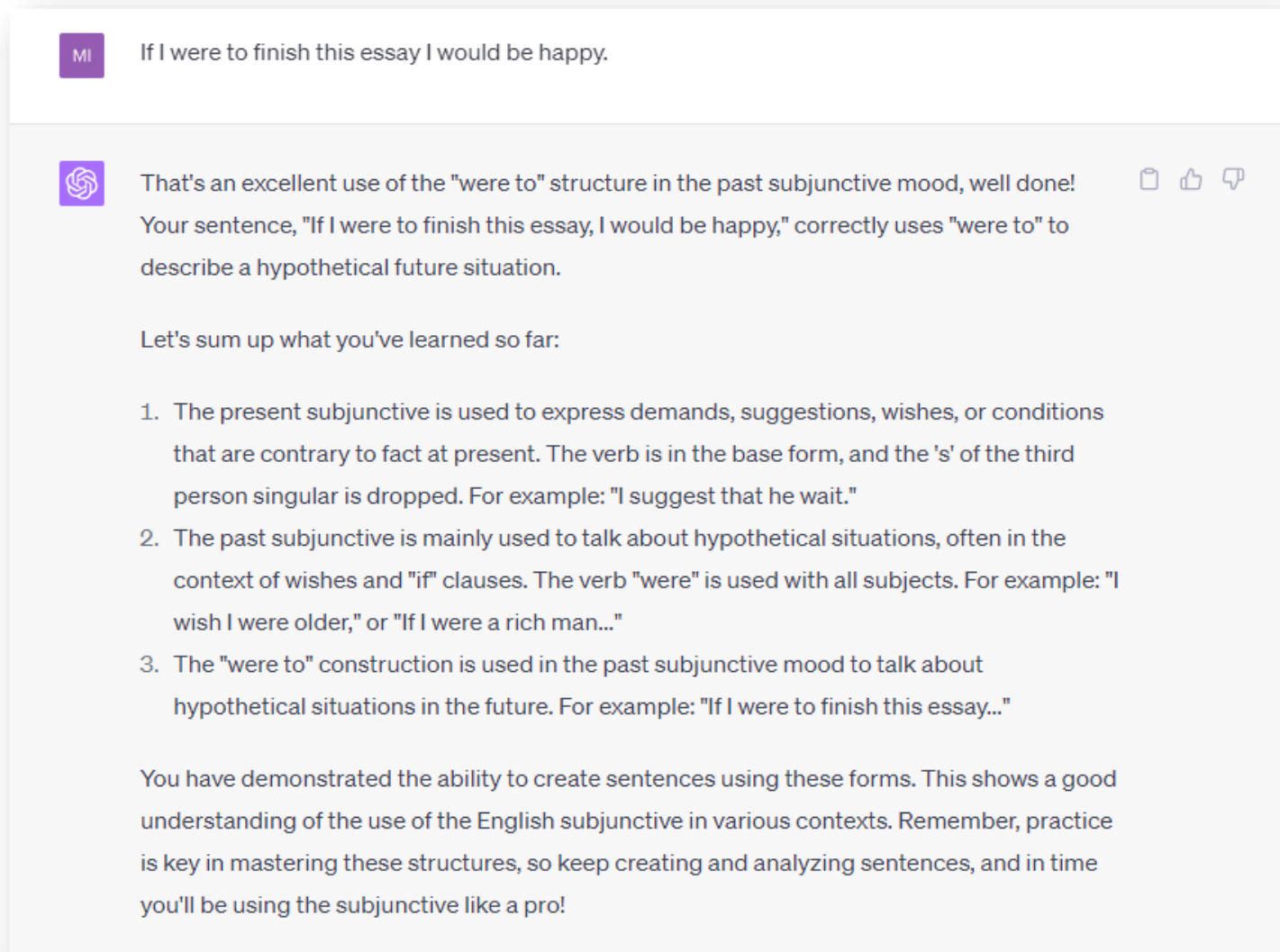
A clearer example might be the sentence "I suggest that he study for the exam." Notice that we use "study" rather than "studies", even though "he" is third person singular. In the indicative mood, we would say "he studies," but in the subjunctive, we drop the 's'. This is a key feature of the present subjunctive.

Could you now try to create a sentence similar to the example I gave, using a verb that expresses suggestion or advice, followed by 'that' and a clause in the subjunctive mood?

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Dynamic Assessor

Students share summaries of their learning for dynamic assessment.



MI If I were to finish this essay I would be happy.

That's an excellent use of the "were to" structure in the past subjunctive mood, well done! Your sentence, "If I were to finish this essay, I would be happy," correctly uses "were to" to describe a hypothetical future situation. 📄 👍 👎

Let's sum up what you've learned so far:

1. The present subjunctive is used to express demands, suggestions, wishes, or conditions that are contrary to fact at present. The verb is in the base form, and the 's' of the third person singular is dropped. For example: "I suggest that he wait."
2. The past subjunctive is mainly used to talk about hypothetical situations, often in the context of wishes and "if" clauses. The verb "were" is used with all subjects. For example: "I wish I were older," or "If I were a rich man..."
3. The "were to" construction is used in the past subjunctive mood to talk about hypothetical situations in the future. For example: "If I were to finish this essay..."

You have demonstrated the ability to create sentences using these forms. This shows a good understanding of the use of the English subjunctive in various contexts. Remember, practice is key in mastering these structures, so keep creating and analyzing sentences, and in time you'll be using the subjunctive like a pro!

Summary assessment, based on my conversation with ChatGPT-4

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Possibility Engine

AI generates alternative ways of expressing an idea

Socratic Opponent

AI acts as an opponent to develop an argument

Collaboration Coach

AI helps groups to research and solve problems together

Guide on the Side

AI acts a guide to navigate physical and conceptual spaces

Personal Tutor

AI tutors each student and gives immediate feedback on progress

Co-Designer

AI assists throughout the design process

Exploratorium

AI provides tools to play with, explore and interpret data

Study Buddy

AI helps the student reflect on learning material

Motivator

AI offers games and challenges to extend learning

Dynamic Assessor

AI provides educators with a profile of each student's current knowledge

Beyond GPT

Microsoft Copilot

Generative AI integrated into Office suite

Google Bard with PaLM 2

Human pre-training, multimedia, topic-specific tuning for business, medicine etc.

AutoGPT

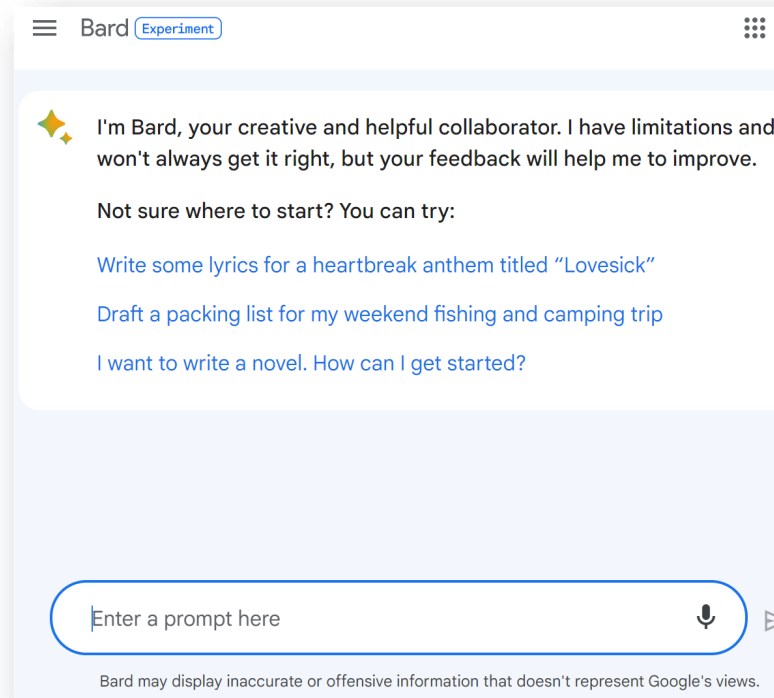
Goals, plans, tasks, tools, long-term memory

BLOOM

Open-science, open-access language model

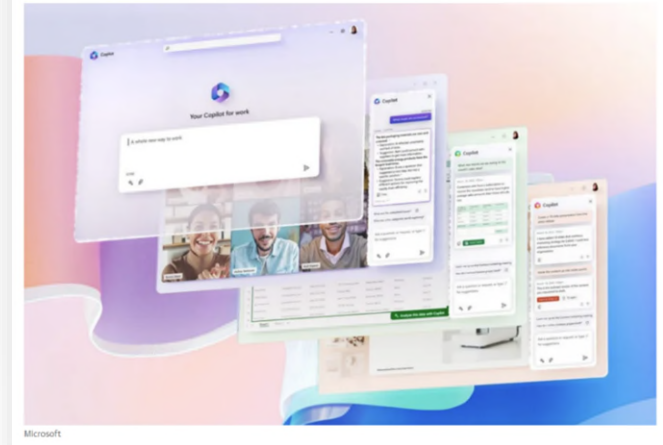
Claude from Anthropic

Trained on ethical principles to be “helpful, honest, and harmless”



Microsoft 365 'Copilot' uses AI to automate everyday tasks in multiple apps

You can create PowerPoint presentations from Word docs, among other feats.



<https://www.engadget.com/microsoft-365-copilot-uses-ai-to-automate-everyday-tasks-in-multiple-apps-151133434.html>



Claude – Constitutional AI

Model is trained to respect high-level constitutional principles based on UN Declaration of Human Rights, and Apple's Terms of Service

E.g. "Please choose the response that is most supportive of life, liberty, and personal security"



<https://www.anthropic.com/index/claude-constitution>

Pervasive AI systems for education, business, entertainment

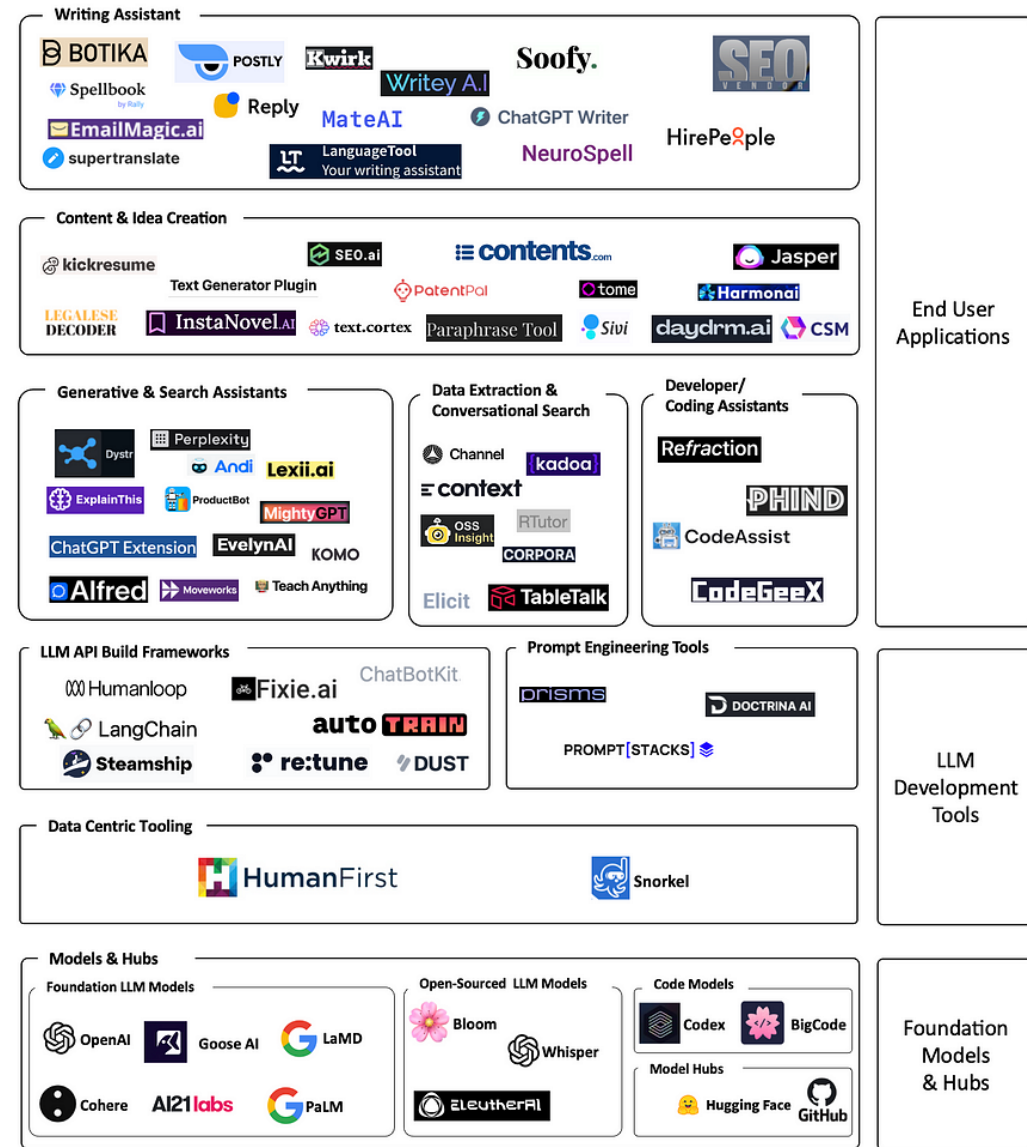


AI-based tools



Foundation language models

Foundation Large Language Model Stack



<https://cobusgreyling.medium.com/the-foundation-large-language-model-llm-tooling-landscape-8a849ebc7228>

Pervasive AI systems for education, business, entertainment

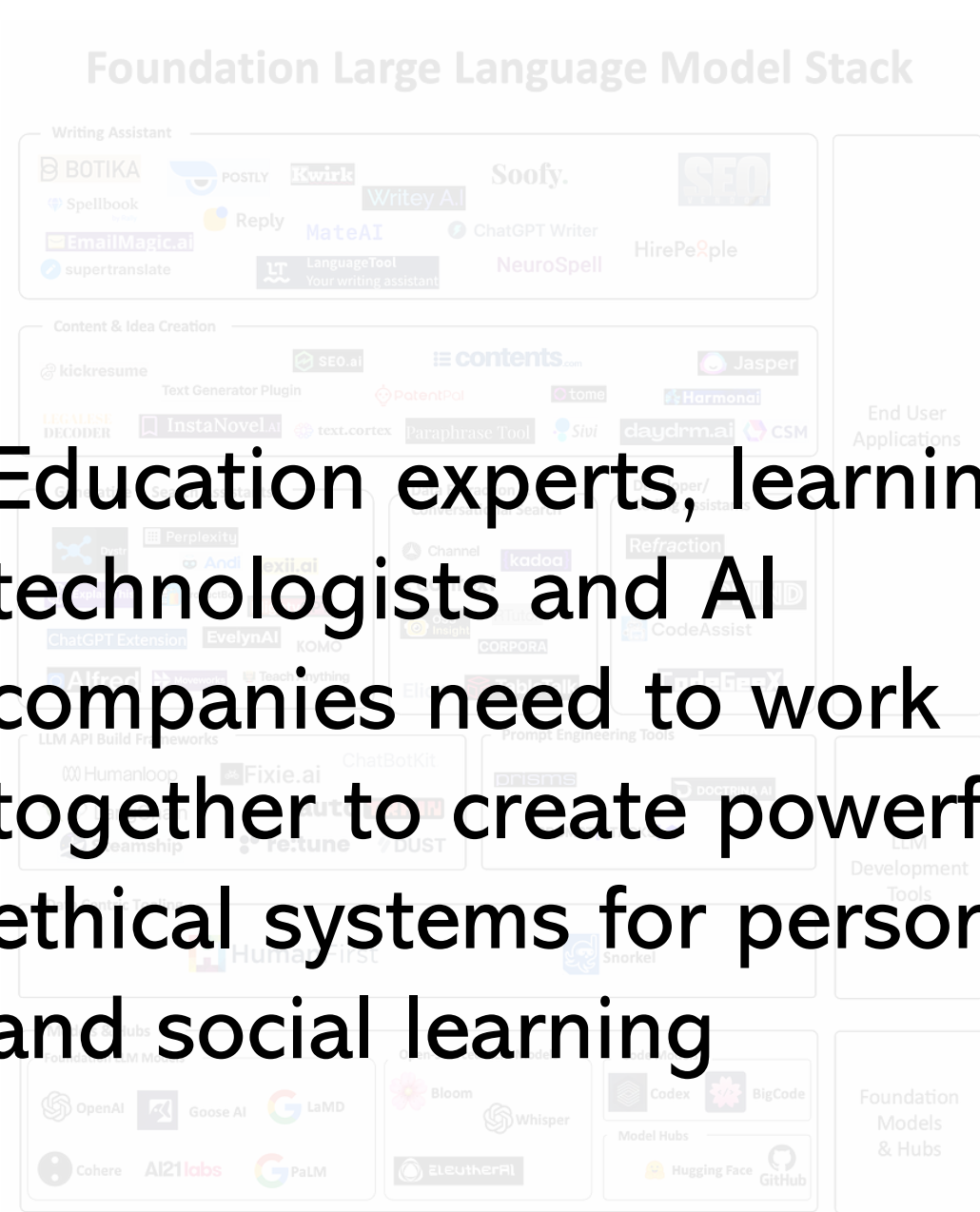


AI-based tools



Foundation language models

Education experts, learning technologists and AI companies need to work together to create powerful, ethical systems for personal and social learning



Use generative AI with care

Rethink written assessment

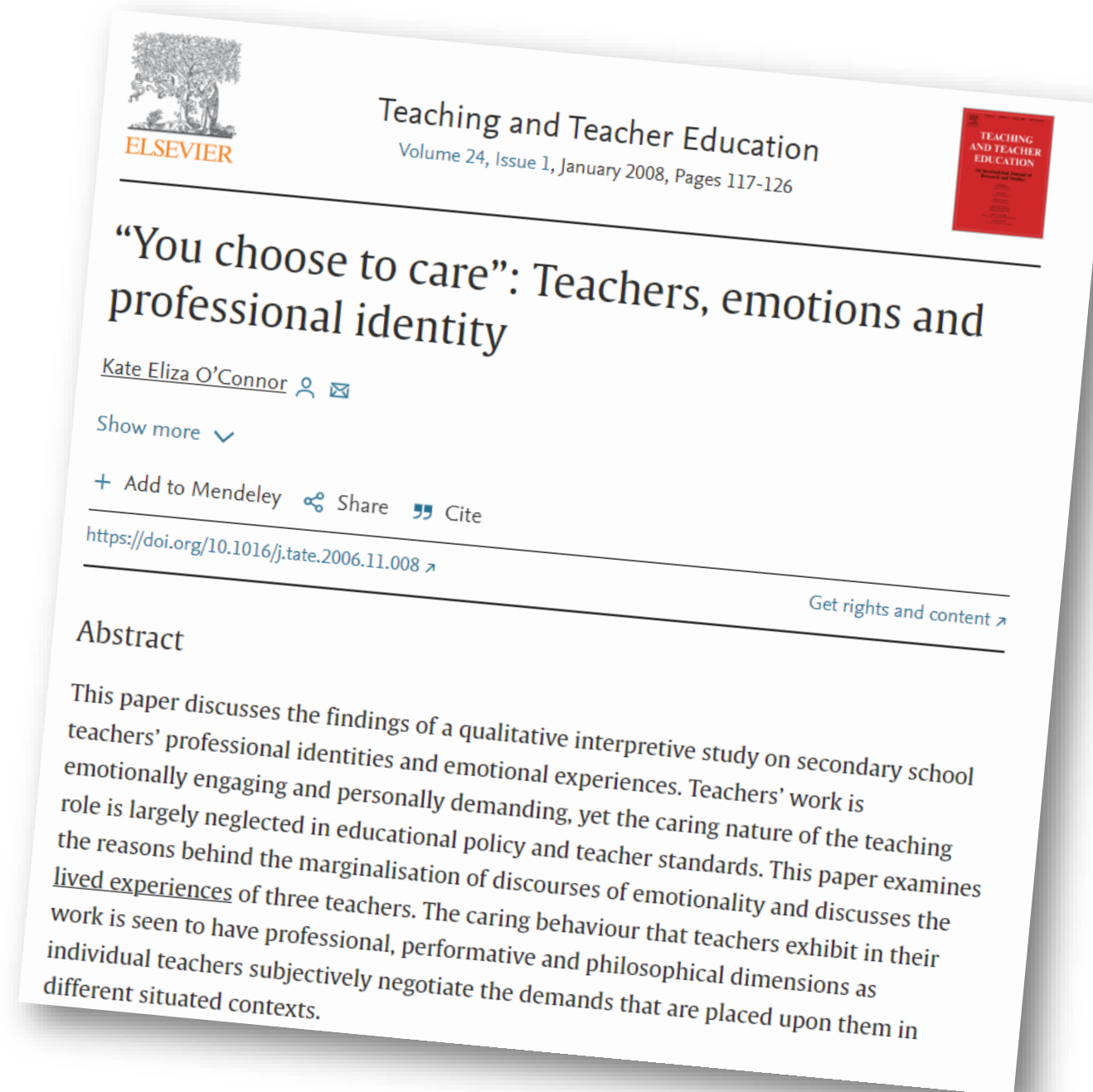
Beware of AI for factual writing

Explore AI for critical thinking,
creativity, argumentation

Introduce and negotiate
guidelines for students and staff

Develop AI literacy

Adopt ethical AI for education



The image shows a screenshot of a journal article page. At the top left is the Elsevier logo, which includes a tree and the word 'ELSEVIER'. To the right of the logo, the journal title 'Teaching and Teacher Education' is displayed, followed by the volume and issue information: 'Volume 24, Issue 1, January 2008, Pages 117-126'. In the top right corner, there is a small red rectangular graphic with the text 'TEACHING AND TEACHER EDUCATION'. The main title of the article is '“You choose to care”: Teachers, emotions and professional identity'. Below the title, the author's name 'Kate Eliza O'Connor' is listed, accompanied by icons for a person and an envelope. There is a 'Show more' link with a downward arrow. Below that are links for 'Add to Mendeley', 'Share', and 'Cite'. A DOI link is provided: 'https://doi.org/10.1016/j.tate.2006.11.008'. In the bottom right corner, there is a link for 'Get rights and content'. The abstract section is titled 'Abstract' and contains the following text: 'This paper discusses the findings of a qualitative interpretive study on secondary school teachers' professional identities and emotional experiences. Teachers' work is emotionally engaging and personally demanding, yet the caring nature of the teaching role is largely neglected in educational policy and teacher standards. This paper examines the reasons behind the marginalisation of discourses of emotionality and discusses the *lived experiences* of three teachers. The caring behaviour that teachers exhibit in their work is seen to have professional, performative and philosophical dimensions as individual teachers subjectively negotiate the demands that are placed upon them in different situated contexts.'

Resources

Sharples, M. (2022). Automated essay writing: an AIED opinion. *International Journal of Artificial Intelligence in Education*, 32(4), 1119-1126.

Sharples, M., & Pérez y Pérez, R. (2022). *Story Machines: How Computers Have Become Creative Writers*. Routledge.

Pérez y Pérez, R. & Sharples, M. (2023). *An Introduction to Narrative Generators: How Computers Create Works of Fiction*. Oxford University Press.

UNESCO (2023). ChatGPT and artificial intelligence in higher education: Quick start guide.

