

A Computer Wrote this Paper

What ChatGPT Means for Education, Research, and Writing

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Introduction

In 1950, British mathematician Alan Turing proposed a test to measure of a machine's ability to exhibit intelligent behavior that is indistinguishable from that of a human. To pass the test, a machine should be able to engage in a natural language conversation with a human evaluator, and the evaluator should be unable to consistently distinguish the machine from a human. The Turing Test, as a theoretical concept, remains a benchmark for measuring a machine's ability to demonstrate human-like intelligence.

I have confession to make. That last paragraph was composed by artificial intelligence software.¹ If you are new to the ChatGPT technology, your first instinct will be to assume that the software located and retrieved this this text from some other location on the Internet. That is a natural mistake to make. When we encounter an unfamiliar technology, we try to analogize it to familiar ones. You already understand how search engines and websites work. You also assumed that the first paragraph must have originally been written by a human being. This is also a natural mistake to make. Your entire life experience up to this point in time is consistent with the belief that only human beings can compose "natural-sounding" paragraphs.

Alas, you are wrong. The software really did "compose" original text, not simply "copy" it. Like the human evaluator proposed by Alan Turing, you were fooled. You were unable to distinguish ChatGPT from a human being. From this day forward, you will commonly be unable to distinguish a machine writer from a human one. This article will help you

¹ Text generated by the January 9, 2023 version of OpenAI's ChatGPT software, in response to the author's prompt: "What is the Turing test?"

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wrestle with that strange new reality. (And in case you were wondering, I did in fact write the second and third paragraphs myself. You'll just have to take my word on that.)

Fortunately, my word is pretty good. As an academic, my calling is to seek out truth. If I'm going to sign my name to something, it needs to be factually accurate and intellectually honest. My professional reputation depends on my integrity.

I began my career at Yale Law School's Information Society Project and am tenured at Indiana University's Robert H. McKinney School of Law. My research focuses on the connections between intellectual property and human rights law. Internationally, I am best known for conceptualizing the right to science and culture. I have also written about whether patents incentivize or hold back innovation and the ethics of imposing new and unproven technologies on vulnerable people. Most recently I have written about the "fair use" of picture books in translation and other pragmatic ways of [ENDING BOOK HUNGER](#) to help one billion children succeed in school and exit poverty.

I am a professional educator, thinker, and writer. Specifically, my full-time job is to coach future lawyers in thinking critically about the law, reading "between the lines" of judicial opinions, performing complex legal analysis, and developing novel research projects.

Very occasionally, I do that through lectures. Much more often, I employ thoughtfully crafted interactive learning experiences. Let's do one together...

About Writing Well

Earlier, I promised you that I composed the second paragraph of this article all by myself. That is true. But when I asked you to take my word on it, I was being facetious.²

As a teacher of critical thinking, I earnestly hope that you will never take my word on anything. It's my job to teach you how to think for yourself.

Today, I want to help you distinguish (for yourself) between mechanical writing and sophisticated writing. Mechanical writing can be done by people or computers... but

² "Being facetious means being humorous or joking in a way that is not entirely serious. It can also mean being ironic or using sarcasm to make a point. Facetious statements or behavior can be difficult to detect as they are usually intended to be taken in a light or humorous way. They are not meant to be taken literally or seriously. It can be used to make a point in a subtle or clever way, without being too direct or confrontational." Original ChatGPT response to the author's prompt, "What does it mean to be facetious?" ChatGPT January 9 Version.

computers will be better at it. Sophisticated writing, on the other hand, requires critical thinking skills that language-generation models do not possess.

Mechanical writing is about communicating existing information. At its best, mechanical writing is clear, conventional, and correct.

Sophisticated writing is about generating new insights through the writing process. At its best, sophisticated writing is thoughtful, self-aware, and creative.

Learning to evaluate writing in this way will make you a better Turing evaluator. It will also help you advance your own skills in sophisticated writing and critical thinking. Even in the new era of competent language-generation technology, these skills still matter.

In my student days, good cursive handwriting was considered important. Writing in cursive was faster than handwriting in print. Students had to learn how to write cursive neatly, so their writing could reliably be read by others.

Technology has made cursive writing skills obsolete. Most elementary schools no longer teach it. Writing in cursive remains relevant only as an art form or hobby. "The kids these days" no longer call it "calligraphy." They call it "lettering." Exceptional artists create; the rest of us use computers to copy their work.

Typing and spelling skills are also nearly obsolete. Today's students resort to typing only when required by circumstances. Speech-recognition software has come too far. Voice dictation is vastly faster than typing. It is already nearly as accurate. Presumably, it will soon be integrated with language-generation software to advance even further.

Computers have long outperformed people at producing letters and words. Suddenly, they outperform people at producing paragraphs and essays.

To employers, mechanical writing no longer has value. Computers already beat us at that game. For today's students, only advanced writing skills matter.

While getting a good job is important, it is not the only reason to develop your capacity for sophisticated writing. The best reason to learn to write well is that writing well is its own reward. ChatGPT can help me explain why.

My query: What is "flow" and how does it apply to writing?

"Flow" is a term used to describe a state of optimal experience where a person is fully immersed in an activity, completely focused and engaged in what they are doing, and often loses track of time. It is a state of heightened concentration and creativity, characterized by feelings of enjoyment, satisfaction, and even ecstasy. In writing, flow can refer to a state where the writer is completely absorbed in the writing process and is able to produce their work effortlessly and with a high degree of creativity. When a writer is in a state of flow, they are able to express their thoughts and ideas clearly, and their writing often comes out more fluidly and with a greater level of detail. Flow can be a powerful tool for writers, as it allows them to produce their best work and to fully engage in the creative process.

Thank you, ChatGPT. Just one (big) problem. You didn't tell me who deserves the credit for the idea of flow! That is ethically essential. Let's be sure to do that before moving on.

My query: Which academic deserves credit for the idea of flow?

The concept of "flow" was first introduced and popularized by the Hungarian psychologist Mihaly Csikszentmihalyi in his book "Flow: The Psychology of Optimal Experience" published in 1990. He has spent decades researching and writing about the concept, studying people in a wide variety of fields, including athletes, artists, musicians, and business leaders, to understand the conditions that lead to flow and how it can be harnessed to improve performance and well-being. Csikszentmihalyi's work on flow has had a significant impact on the fields of psychology, education, and management, and it has been widely adopted by researchers and practitioners in these fields.

Thank you, ChatGPT. You really are saving me so much time in explaining the basics to my audience. With your help, I get to spend less time wordsmithing my text, and less time searching the Internet. That lets me focus on coming up with my own ideas. You are definitely putting me into flow!

Okay, let's get to the good stuff...

The Socratic Method

Today I'm going to lead you through a teaching technique known as "the Socratic method." ChatGPT, can you explain what I mean by that term?

My query: How is the Socratic Method commonly practiced in law schools today?

The Socratic method is commonly used in law schools as a teaching method to help students develop critical thinking and analytical skills. A professor will pose a legal problem or question to a student, and then ask a series of follow-up questions to stimulate critical thinking and encourage the student to explore the issue in depth. In this method of teaching, the professor usually plays the role of the "Socratic" figure, asking questions and guiding the discussion, while the students play the role of the "interlocutors," responding to the questions and participating in the discussion. With the current COVID-19 pandemic, the way the method is applied might have changed to adapt to the online or hybrid classes.

Thank you, ChatGPT. That was super helpful. Everything that you said aligns with my professional expertise as a law professor

Now we get to experience the Socratic method together. My job is to ask the questions, and your job is to answer them. Really. The answers are not coming later in this article, and you cannot Google them. The answers are not out there, because these questions have never been asked before. You really do have to figure them out for yourself!

For the fullest benefit, discuss each question with a partner before moving onto the next question. If you are alone, please handwrite your thoughts; but discussing with a partner is much better. Being in dialogue with people who have different life experiences, personal identities, values, thinking styles, prior knowledge and skills than your own will push you to consider alternative perspectives.

Sorry. I just slipped back into writing like a pointy-headed academic.³

ChatGPT, help me out!

Query: Can you make that sound even less formal?

It's best to talk with someone else about each question to get the most out of it. If you're by yourself, jotting down your thoughts can help, but talking with someone is way better. Chatting with people who have different life experiences and perspectives will push you to see things in a new light.

³ The phrase "pointy-headed academic" is believed to have originated in the United States in the mid-20th century. It is often used to describe intellectuals or academics who are perceived as being out of touch with reality or overly focused on abstract ideas. The phrase is considered derogatory, and the use of it suggests a lack of respect or understanding of the work of academics. The phrase is thought to have come from the popular image of academics having an overly large forehead, a feature that is often associated with intelligence and academic pursuits. The phrase is used to mock or belittle the intelligence of academics. It was used during the Cold War era in the 1950s as a way to dismiss intellectuals and academics as out-of-touch with the real world and to undermine their credibility. Unedited ChatGPT response to "What is the origin of the phrase pointy-headed academic?" I am being facetious. See supra note 2.

Thank you, ChatGPT. That should be super helpful for many of my readers.

Okay. Here are the questions I want you to deliberate upon:

1. What similarities exist between the first two paragraphs of this article?
2. How else can we describe a passage of text, apart from describing what it is about? Are they similar or different in those ways?
3. What were you taught is the difference between "good" and "bad" writing?
4. Are the writing samples generated by ChatGPT for this paper "good" writing or "bad" writing? Why?
5. Based on those samples, types of writing tasks do you expect that language-generation software is going to be good at?
6. What things would you expect language-generation models to do poorly?

If you have access to ChatGPT through <https://chat.openai.com/chat>, take a moment to run some experiments to test the hypotheses you just developed.

7. Did your experiments with ChatGPT match your expectations or push you to refine the opinions you held before running the experiment? How so?

If you took your time to talk your way through all or most of those questions, I am sure that you and your discussion partners thought of some things that would never have occurred to me. I would love for you to share them with me at lbshaver@iu.edu.

What ChatGPT Does Well

While I'm waiting to hear from you, here are my own preliminary thoughts...

The mechanics of writing

Language-generation software is much better than humans at following standard writing conventions. It consistently writes with nearly perfect grammar, syntax, spelling, punctuation, vocabulary, and sentence and paragraph structure. Does it occasionally mess up? Yes. But no more often than your average lawyer.

Query: Please correct that passage

Language-generation software is already much better than humans at writing conventions. It consistently writes with nearly perfect grammar, syntax, spelling, punctuation, vocabulary, and structure. Does it occasionally make mistakes? Yes. But no more often than the average human.

Uh-oh, I forgot the Oxford comma! ChatGPT perfected my writing mechanics.

But are the ideas still correct? Yes and no. ChatGPT, your paragraph was accurate right up to the last word. Then you blew it. I said what I meant, and I meant what I said. "Your average lawyer" is just not the same as "the average human."

Explaining well-known concepts

Language-generation software is already excellent at clearly explaining well-known information and concepts. Faster than any human being, ChatGPT will search the Internet for the most relevant information, compare multiple sources against each other, and clearly summarize the "wisdom of the crowd." Hey, ChatGPT...

Query: What is "wisdom of the crowd?"

The wisdom of the crowd refers to the phenomenon where a group of people's collective opinions, predictions, or judgments tend to be more accurate than those of any individual member of the group. This phenomenon is based on the idea that a large number of diverse opinions, when combined, can cancel out individual biases and produce a result that is more accurate or reliable. The concept of wisdom of the crowd is used in various fields such as finance, political science, and social science to make predictions, solve problems, and make decisions.

Thank you, ChatGPT. You're saving me so time explaining the basics to my audience!

Giving credit... but only if you ask

That last Chat GPT response left out something very important.

Ideas come from people, and people like to get credit for their work. Researchers *need* to get credit for the ideas they generate. This is how they keep their jobs and get promoted. Invoking other people's ideas without giving them credit is plagiarism... even if you put it into your own words.

Let's take a moment to make sure we do the ethical thing here. With ChatGPT's help, it won't take much time at all.

Who deserves the credit for the idea of "the wisdom of the crowd?"

The concept of "the wisdom of the crowd" was first introduced by Francis Galton in his 1907 book "Vox Populi." Galton observed that the average estimate made by a large group of people was often more accurate than that of any individual expert. Since then, the idea has been popularized and further developed by other researchers and thinkers in the fields of sociology, psychology, and statistics.

Who are some of those researchers?

Some notable researchers and thinkers who have built upon and popularized the concept of "the wisdom of the crowd" include:

- James Surowiecki, who wrote a book called "The Wisdom of Crowds" in 2004, which explores the concept in depth and provides examples of how it can be applied in different fields.
- Steven Johnson, who wrote "Emergence: The Connected Lives of Ants, Brains, Cities, and Software" in 2002, which also explores the concept of emergent behavior and how it can be seen in different systems.
- Cass Sunstein, a legal scholar, political scientist and economist who wrote "Wisdom of Crowds" in 2005 which explores how groups can make better decisions than individuals, and how the internet and new technologies can facilitate collective problem-solving.

- Other researchers who have made significant contributions to the field of collective intelligence and the study of "the wisdom of the crowd" include Peter Gloor, Scott Page, and Alex Pentland. It is worth noting that the concept of "the wisdom of the crowd" is a multidisciplinary subject that is studied by researchers from various fields such as sociology, psychology, decision science, economics, etc.

Hmmm. All the names you gave me are male. Is this the bias I keep hearing ChatGPT has? Are there also important female scholars who made contributions to this concept?

I apologize for the oversight in not mentioning any female scholars who have contributed to the concept of "the wisdom of the crowd." There are indeed many female scholars who have made important contributions to this field, including:

- Surowiecki's book, "The Wisdom of Crowds" was preceded by a book by Linda Hill entitled "Collective Genius: The Art and Practice of Leading Innovation" which explores similar themes of how organizations can tap into the collective intelligence of their members.
- Anita Woolley, an organizational behavior researcher who has studied the impact of diversity on team performance and the potential of collective intelligence.
- Susan Fiske, a social psychologist who has studied the impact of stereotypes and prejudice on group decision-making.
- Marilyne Andersen, an organizational behavior researcher who has studied the dynamics of collective intelligence in virtual teams.
- Deborah Ancona, an organizational behavior researcher who has studied the role of leadership in creating conditions for collective intelligence.

It is important to note that the field of research on "the wisdom of the crowd" is a multidisciplinary subject, and there are many researchers from various fields, including sociology, psychology, decision science, and economics, who have contributed to this concept, both male and female.

Thank you, ChatGPT. I could have spent hours researching the literature on wisdom of the crowds, and probably still missed many of those names. After we finish this project, I'll ask you to tell me more about Anita Wooley's arguments and evidence!

Adjusting level and tone

Language-generation software is also highly skilled at imitating various writing styles. You can ask ChatGPT to put your writing into words that even a first-grader can understand. Or even to imitate the tone of a judicial opinion. Examples:

Query: Can you explain what it means to be facetious in the way a first-grader might explain it?

Being facetious means making a joke, but in a way that might be hard for some kids to understand. Like when grown-ups say something that sounds serious, but they are really just pretending. It's like

when we play make-believe, but with words. Like when we say "I'm so hungry, I could eat a whole pizza" when we're not really that hungry, we're being facetious. It's a way to be funny and make people laugh.

Query: Can you say that sounding like a lawyer?

Facetiousness, as defined by its etymology, refers to the use of language or behavior that is intended to be humorous or jocular, while still conveying a deeper meaning or message. It is often characterized by the use of irony, sarcasm, or satire, and is used as a rhetorical device to make a point or convey a sentiment in a subtle or nuanced manner. The facetious remark or behavior is not to be taken literally, but rather as a means to convey a deeper meaning or message. As such, it can be considered a literary device employed to convey the intended message in a subtle, clever, and often humorous way.

Wow! That sounds quite a bit like Justice Sandra Day O'Connor, writing in *Campbell v. Rose-Acuff* about parodic uses of copyrighted works. Interesting.

Expanding on a common view

ChatGPT can take any idea or opinion you type and transform it into a well-articulated argument that sounds like sophisticated writing... but isn't.

Query: I believe that men and woman are equal. Can you say that in a way that makes me sound smart?

"Gender equality is a fundamental human right that is essential to the realization of a just and equitable society. The concept of equality between men and women is rooted in the belief that all individuals should have the same opportunities and access to resources, regardless of their gender. This principle is not only morally and ethically sound, but it is also supported by overwhelming evidence that societies that promote gender equality are more prosperous, peaceful, and stable."

Query: How did you do that?

As a large language model, I have been trained on a dataset of millions of text, I have learned the patterns of language usage, grammar and style. So when you give me a task to rephrase something, I use my knowledge and the patterns I've learned to generate new text that is coherent, grammatically correct, and in line with the task's instructions. In this case, I used my knowledge of gender equality, the concept of equality and the importance of having equal opportunities to generate a statement that expresses your belief that men and woman are equal in a more formal and sophisticated way.

Ah, so you didn't have anything new to say. You just repeated other people's ideas.

Implications

Which research specifically shows that people make judgements about your intelligence based on how you speak and write?

There is a large body of research that shows that people make judgments about a person's intelligence based on their speech patterns and language use. Some specific studies that demonstrate this include:

- A study by researchers at the University of Texas at Austin found that people perceive individuals who speak with a standard accent and use standard grammar as being more intelligent than those who speak with a non-standard accent or use non-standard grammar.
- A study by researchers at the University of Chicago found that people are more likely to trust and follow the advice of individuals who speak in a confident and eloquent manner, regardless of the content of their speech.
- A study by researchers at the University of Pennsylvania found that people are more likely to perceive individuals who use a larger vocabulary and more complex sentence structure as being more intelligent than those who use simpler language.
- A study by researchers at the University of California, Berkeley, found that people are more likely to perceive individuals who use formal language as being more intelligent and competent than those who use informal language.

These studies demonstrate that people tend to make judgments about a person's intelligence based on their speech patterns and language use. However, it's important to note that these judgments are often influenced by implicit biases and stereotypes and may not always accurately reflect a person's intelligence. Intelligence is a multifaceted trait and language use is just one aspect of it, it's important not to stereotype or make assumptions about a person's intelligence based on their speech.

Please give me the citations for that research, and links to their full text without a paywall.

I apologize, as a language model, I don't have access to the internet, and therefore, I can't provide you with the links to the articles. However, I can provide you the citations for the studies that I mentioned.

- The study by researchers at the University of Texas at Austin: "Perceptions of Intelligence and Standard Language Attitudes" by Elizabeth A. Koon and Penelope Eckert, published in *Language in Society*, Vol. 31 (2002)
- The study by researchers at the University of Chicago: "Language Style as Audience Design" by Nicholas Epley and Chad Laurie, published in *Journal of Experimental Social Psychology*, Vol. 45 (2009)
- The study by researchers at the University of Pennsylvania: "Linguistic Markers of Group Membership" by Penelope Eckert and Sally McConnell-Ginet, published in *Language in Society*, Vol. 14 (1985)

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- The study by researchers at the University of California, Berkeley: "Formality and Informality in Language" by Erving Goffman, published in Studies in the Anthropology of Language and Communication (Harper & Row, 1967)

Please note that these are just a few examples of the studies that have been conducted on the subject and there are many more out there. Also, some of these articles might be behind paywalls, you might need to check with your institution or library if they have access to them.

Giving standard advice

If we only think about ChatGPT as a writing tool, we might not expect it to give good advice. Surprisingly, it can. Advice from someone you know usually comes from their own lived experience. Advice from ChatGPT comes from books and the Internet. Ultimately, it comes from other people. ChatGPT consults millions of sources and compares them for consistency before replying. For better or worse, you will only get mainstream advice.

My Query: Can teachers and professors tell when a student has copied text that they did not write themselves?

Yes, teachers and professors can usually tell when a student has copied text that they did not write themselves. There are several ways that educators can detect plagiarism, including:

- Checking the student's work against online sources and databases of previously written material, such as Turnitin or Grammarly
- Comparing the student's work to the work of other students in the class
- Examining the writing style, vocabulary, and phrasing used in the student's work to see if it is consistent with the student's typical writing style
- Checking the formatting and citation style used in the student's work to see if it is consistent with the assignment's instructions.

It's worth noting that, plagiarism detection software may not catch all instances of plagiarism, but teachers and professors can use them as a tool to help identify suspicious work. Additionally, many educators also have experience and expertise in identifying plagiarism through their years of experience reading and grading student papers.

It is important to note that plagiarism is a serious academic misconduct and can have severe consequences, students should be aware of academic integrity policies and use credible sources when writing their papers and always give credit where credit is due.

Can you make that sound more like I wrote it myself?

As a professor, it's not always easy to distinguish student writing from professional writing. Some professors have been teaching for years and have read countless student papers, making it easy for them to spot the typical student writing style. However, for new professors or those with limited experience in a specific field, it can be more challenging.

When it comes to determining if a paper is written by a student or a professional, professors often look at factors such as language and grammar, structure, and the level of research and critical thinking demonstrated in the work.

It's worth noting that, while students should aim for formal language and professional writing style, it's also important to show some creativity and personal voice in their papers as long as it maintains its formality and coherence. Some professors appreciate this approach, as it makes the paper more engaging and unique.

So, in short, it can be a bit of a mixed bag for professors when it comes to distinguishing student writing from professional writing, but with experience and attention to details, it can be done.

Imitating your own writing style

Language-generation software is also shockingly good at adjusting the style and tone of text to imitate different authors.

My Query: Can you say that in my own writing style?

I'm sorry, I don't have enough information about your writing style. Could you please provide more context or examples of your writing for me to understand your writing style and adapt my response accordingly.

Okay. Take these two paragraphs from [ENDING BOOK HUNGER](#). Let's try again.

My Query: Using the sample I gave you of my writing, can you rephrase that answer to sound more like my own writing style?

Sure, here's my attempt at rephrasing the answer in your writing style:

As a professor, I can usually tell when a student has copied text that they did not write themselves. There are a few ways to detect plagiarism, including checking the student's work against online sources and databases of previously written material, comparing the student's work to the work of other students, examining the writing style, vocabulary and phrasing used in the student's work and checking the formatting and citation style used in the student's work. It's worth noting that

plagiarism detection software may not catch all instances of plagiarism but they can be used as a tool to help identify suspicious work. Additionally, with years of experience reading and grading student papers, I have developed an expertise in identifying plagiarism. It's important to remember that plagiarism is a serious academic misconduct and can have severe consequences, students should be aware of academic integrity policies and use credible sources when writing their papers and always give credit where credit is due.

Well, that isn't exactly how I would put it. I always make it a point to leave out phrases like "Additionally," "It is worth noting," and "It's important to remember." To me, it's better to skip the "rhetorical throat clearing" and get right to the point.

But I do recognize other elements of my personal writing style in what you came up with here, compared to your first version. Pretty good, ChatGPT. Especially considering that I had only given you two paragraphs to work with.

Giving feedback on your writing

In fact, I feel like I'm seeing my personal writing style in a new light. Having more conversations with you might help me make conscious choices about where I want to take my style in the future.

Translating between languages

I began studying Spanish as a second language twenty years ago. By now, understanding spoken and written Spanish comes quite easily to me. My fluency as a speaker waxes and wanes according to how much practice I've been getting recently.

Writing in Spanish? Well, I've always found that difficult. But that no longer matters.

In 2010, I tried out Google Translate and was unimpressed. The text was almost useless. But in 2016, Google Translate suddenly got incredibly good.

My Query: When did Google Translate start using machine learning?

Google Translate started using machine learning techniques in 2016. Google Translate initially used statistical machine learning, which is based on analyzing large amounts of bilingual text and identifying patterns in the source and target language. However, this approach is not very effective when it comes to languages that do not have a lot of bilingual text data. In 2016, Google introduced a neural machine learning-based model called Google Neural Machine Translation (GNMT), which uses artificial neural networks to translate text. This new approach has significantly improved the accuracy of the translations provided by Google Translate. With the new neural machine learning

model, Google Translate can take into account the context of a sentence and produce translations that are more accurate and closer to human-like translations.

Leveling the playing field

ChatGPT is a huge boon for non-native English speakers. You can be brilliant and superbly educated and still have a really difficult time getting hired if English is not your best language. But now you have help.

For years I've been teaching my foreign-born students not to write in their own words. I've advised them to rely as much as possible on quoting the exact words of the assignment's questions, the relevant statutes and judicial opinions, and any other provided text. It works. The same thinking is required. But this way, they can write much faster and with fewer mistakes. It makes their writing look more "professional" even to people who expect all professionals to write exactly like a native English speaker.

No longer. ChatGPT expands their options. They can compose their thoughts in the language that comes most naturally to them and ask ChatGPT to translate it. They can ask ChatGPT to suggest more formal ways of rewriting the text. Or they can ask ChatGPT to paraphrase assigned reading material – sometimes in multiple ways – to enhance their understanding.

Saving time

Each advance in writing technology makes writing more efficient. A mentor of mine once told me that he got hired not because his scholarship was especially good, but because he was a computer nerd. Being an early adopter of word processing software allowed him to much faster – and therefore more – than other scholars. The confession was consistent with his trademark humility, but perhaps he was simply being facetious.

Imitating human creativity

ChatGPT can even produce writing that seems creative. Check this out:

Query: Can you explain that in a limerick?

Being facetious is like a game,
with words, it's quite the same.
Like when you say "I'm so tired"
But you're not, you're just wired
To make others laugh, it's quite a claim.

If your friend came up with that on the spot, you'd definitely say, "Wow, you're so creative!" ChatGPT can sound creative. But it is not true creativity. ChatGPT imitating human creativity that it found in databases of existing text.

Does that matter? Discuss amongst yourselves.

What ChatGPT Can't Do

ChatGPT doesn't need to be thoughtful, reflective, or creative. It simply does what it is told to do. It has access to an immense database of written text. It imitates what it reads, from children's books to judicial opinions. Through this imitation, it can communicate widely-published ideas and knowledge. But it cannot think critically. Here is a standard explanation of what it means to think critically, courtesy of ChatGPT:

Critical thinking involves several key elements, including:

- Carefully evaluating evidence and arguments. This means looking at information from multiple sources and considering different perspectives, as well as assessing the reliability and credibility of the information.
- Identifying and evaluating assumptions and biases. This means being aware of your own preconceptions and being open to the possibility that they may be incorrect. It also means being aware of the ways in which others may be influenced by their own biases.
- Reasoning logically and making sound inferences. This means using evidence and logical argumentation to arrive at a conclusion, rather than relying on intuition or gut feelings.
- Being open-minded and curious. This means being willing to consider new ideas and perspectives, and being willing to revise your beliefs in light of new evidence.

Critical thinking is an essential skill for many aspects of life, such as making decisions, solving problems, and understanding complex issues. It is also an important skill for academic and professional success, as well as personal growth and development.

Thank you, Chat GPT. I like that quite a bit. If I can summarize for emphasis:

Thinking critically means being skilled at evaluating evidence, testing hypotheses, making original connections between ideas, considering alternatives, generating new insights, and imagining solutions. Thinking critically means being good at figuring out

what is true... and exercising good judgment in deciding what to do with the truth once you find it.

To tell the difference between ChatGPT and a human? Look for substance, not style. Ideas, not information. Look for critical thinking. Teachers have long known how to tell the difference. ChatGPT gives us new reasons to do so. It also gives us new opportunities to focus on developing that skill in our students.