SUNY Geneseo

KnightScholar

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Can Generative AI Help Solve Functional Illiteracy?

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IDEAS THAT MATTER

2024-2025 Artificial Intelligence

Module Title: Can Generative AI Help Solve Functional Illiteracy?

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Overview:

Lecture 1 "An Introduction to Functional Illiteracy and Generative AI" provides a foundational understanding of functional illiteracy, exploring its causes, impacts, and implications for education and society. This lecture sets the stage for understanding the intersection between functional illiteracy and AI, offering a critical perspective on how technology can both support and complicate literacy development.

Lecture 2 "Bridging the Literacy Gap Using Generative AI" focuses on practical strategies for leveraging generative AI technologies to enhance literacy instruction and address disparities in literacy development. This lecture examines how AI tools can be integrated into classroom settings to support diverse learning needs, providing personalized feedback and tailored instructional materials to help students improve their reading and writing skills.

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Automated Writing Platforms Exercise

This exercise enables you to explore the use of automated writing platforms such as ChatGPT and Google Bard.

PART ONE: Start with a quick literature review. Define the following terms related to artificial intelligence: large language model, generative AI, stochastic parrot, computational creativity, prompt engineering, and AI hallucination.

Then, review nascent research (2023) into automated writing platforms and functional illiteracy.

> …In the last year, automated writing platforms like ChatGPT have taken the world by storm. Much of the discussion around them has focused on their misuse—how they spell the death of academic integrity, rob creators of opportunities to profit from their art, and most damagingly, exacerbate present day inequalities. But reframing these technologies as tools rather than weapons may enable us to support one demographic that has traditionally been excluded from education and civic life, the illiterate.
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> In the United States, about 1 in 5 adults is functionally illiterate, meaning they cannot read and comprehend relatively short text. Around the world, 757 million people are illiterate. Unsurprisingly, developing countries struggle with illiteracy more than developed ones, where functional illiteracy thrives, substantiating how access to high-impact literacy has not only become a privilege but also something that demands more immediate action and correction.
>
> ChatGPT can help functionally illiterate individuals in several ways, including its ability to orally summarize text that a computer can then read aloud, or its ability to receive inputs of ungrammatical typed or dictated text that can then be corrected. Disadvantaged male adolescents, who are historically underrepresented in the pursuit of sophisticated literacy skills, report the most difficulties here: a higher rate of social pressure often exists with respect to not reading or not wanting to read, and young boys are sometimes socialized into believing that reading is simply uncool. As a result, male students are more likely to fall behind their female counterparts—by high school, some estimate that gap is almost too large to patch. One opportunity exists to implement ChatGPT into a student's Individualized Education Plan (IEP) as a modification that could level the playing field and create more equitable outcomes in pursuit of their success. Rather than banning it in schools, we may consider teaching with it…. (Goga 2023)

PART TWO: Open your automated writing platform of choice. Using your best prompt engineering skills, draft a composition with the following parameters:

- Academic essay that makes an argument
- Multiple paragraphs
- Evidence from sources
- At least 1000 words

Note that you may need to do some considerable writing/re-writing of both the prompt and composition to receive a coherent essay.

PART THREE: After this, I want you to copy and paste the generated composition into Google Docs which will allow you and your partner space to complete annotations of the essay. Spend 10-15 minutes reading and annotating the essay for its strengths and shortcomings. Note specific strengths and shortcomings that you've identified—the more, the better. When you are done with this, share the Google Doc of annotations with your instructor.

PART FOUR: In a writeup of at least 300 words (place it below your essay and annotations in the same Doc) analyze the process of engineering a composition using the automated writing platform. Consider, specifically, the platform's strengths and shortcomings in addition to how it diverges from a human author's work. Draw conclusions about the relationship (if you believe one should exist) between human and non-human author. To what extent is the composition you've just written your own? **It is imperative that you write the reflection—do not use ChatGPT to help with this.**

See the *New York Times* (2023) for this last question:

> A trade group for U.S. authors has sued OpenAI in Manhattan federal court on behalf of prominent writers including John Grisham, Jonathan Franzen, George Saunders, Jodi Picoult and "Game of Thrones" novelist George R.R. Martin, accusing the company of unlawfully training its popular artificial-intelligence based chatbot ChatGPT on their work. … Popular musical artists and graphic designers have also joined the lawsuit. … Copyright questions surrounding A.I. remain unresolved, and experts are divided over whether authors' claims of infringement will hold up in court. Some argue that if an A.I. program is ingesting copyrighted works for training but creates new works that are substantially different, that constitutes fair use. Others, however, believe the authors' argument is likely to prevail. "They've scraped all this content and put it into their databases without asking permission — that seems like a huge grab of content," said Edward Klaris, a lawyer who specializes in intellectual property and media law. "I think courts are going to say that copying into the database is an infringement in itself."