

AI in Educational – Ethics and Prompt Writing Strategies

AI Detector Limitations



Introduction to AI Detection Tools

AI detection tools, like Turnitin and GPTZero, are software designed to identify AI-generated content. These tools analyze writing patterns, stylistic elements, and other textual features that are characteristic of AI-generated text. However, as AI technology rapidly evolves, these tools face significant challenges in keeping up. The sophistication of language models, such as OpenAI's GPT series, means they can produce text nearly indistinguishable from human writing. This poses a major challenge for maintaining academic integrity (Center for Teaching Innovation at Cornell University, n.d.).

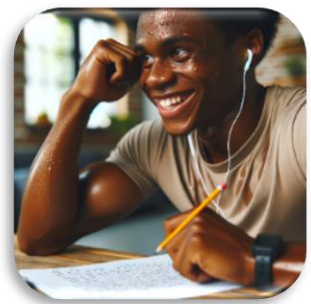
Challenges in Detection

- **Evolving Language Models:** AI models are continuously updated, learning new styles and patterns of writing. This constant evolution makes it difficult for detection tools to maintain an up-to-date database of AI writing signatures.
- **False Positives and Negatives:** These tools can mistakenly flag human-written content as AI-generated (false positives) or fail to detect AI-written content (false negatives). This inaccuracy can lead to unfair accusations or overlooked violations of academic integrity.
- **Implications for Academic Integrity:** The limitations of current AI detection tools necessitate a more nuanced approach to maintaining academic standards. It highlights the need for educators to develop additional strategies to identify and discourage AI-assisted cheating.

Value of Struggle in Learning

The Role of Challenges in Education

Engaging with and overcoming academic challenges is a critical component of deep learning. This process, often referred to as “productive struggle”, is essential for mastery of subject matter. It involves students grappling with difficult concepts, which ultimately leads to better understanding and retention (Universidad de San Diego Professional and Continuing Education, n.d.; Edutopia, n.d.).



“FAIL” - “First Attempt In Learning”

- "FAIL" represents "First Attempt In Learning," a concept that frames initial setbacks or challenges as integral parts of the learning journey, not as failures.

Strike the Balance Between AI Assistance and Learning Struggles

- It's crucial to strike a balance between using AI as a tool and directly engaging with learning materials. AI should augment rather than replace the effort and struggle essential for deep learning.



AI as a Guide, Not a Solution

- AI functions best as a guide or assistant in the learning process, not as a comprehensive solution, ensuring students effectively use AI tools without over-reliance.

Encouraging Resilience and Growth Mindset

- Resilience in the face of challenges is key, and fostering a growth mindset among students helps them view effort and struggle as pathways to improvement and mastery.

Strategies for Promoting Deep Learning

- **Creating Challenging Assignments:** Develop assignments that push students to think critically and apply concepts in new ways. These tasks should be complex enough to require effort but still achievable with persistence.
- **Encouraging Resilience:** Teach students to view challenges as opportunities for growth. This includes fostering a classroom culture that values effort and persistence over immediate success.

Role of Teachers in Guiding Learning

Balancing Challenge and Support

Educators play a crucial role in identifying the right balance between challenge and support. This involves providing enough difficulty to stimulate learning while offering adequate assistance to prevent frustration.

Guiding Principles for Educators

- **Responsive Teaching:** Adapt teaching methods based on student feedback and performance. This includes recognizing when students need additional support or when they are ready for more challenging material.
- **Fostering Genuine Learning Environments:** Create classroom atmospheres that encourage exploration and inquiry. This involves minimizing the focus on grades and fostering a love for learning.



Assignment and Assessment Design

Creating AI-Resistant Assignments

Design assignments that encourage original thinking and problem-solving, areas where AI currently struggles. These assignments should require students to apply knowledge in new contexts or combine concepts in unique ways.

Assessment Strategies

- **Evaluating Critical Analysis:** Focus on how students interpret and apply information, rather than on the information itself. This approach values the unique insights students bring to their work.
- **Creativity in Grading Criteria:** Incorporate elements that assess creativity and original thought. This could include evaluating the process students use to arrive at their conclusions, not just the final answer.



Transparency with Students and AI in Skill Development

Communicating the Role of AI in Learning

Educate students about the limitations of AI in developing real skills. Discuss how over-reliance on AI tools for assignments can impede their learning journey and long-term skill acquisition.

Fostering a Culture of Honesty and Integrity

- **Transparency in AI Usage:** Encourage students to be open about their use of AI tools. This includes discussing why certain tasks might be appropriate for AI assistance and others not.
- **Understanding Skill Development:** Emphasize the importance of engaging directly with material. Highlight the long-term benefits of developing critical thinking and problem-solving skills, which AI cannot replicate.

Facilitate Proper Acknowledgement

Implementation Tips

- Assignment rubrics can be adjusted to include a scoring component for the correct attribution of AI aid. This adjustment ensures that recognition of AI support becomes an essential and evaluated aspect of the educational task, highlighting its educational value.
- Classroom discussions can serve as a platform for students to share and reflect on their experiences with AI in their academic work, fostering a collaborative learning environment.
- Examples that clearly delineate proper and improper AI use in scholarly settings are presented to establish clear guidelines and manage student expectations effectively.
- Students are encouraged to critically evaluate AI-generated material, enhancing their discernment regarding its authenticity, applicability, and potential biases.



OpenAI's Prompt Strategies (OpenAI, n.d.)

(OpenAI has crafted six strategies for crafting effective prompts, and below are the initial four, tailored for the educational context.)

#1 Write Clear Instructions - Six Tactics for Writing Clear Instructions:

1.1 Include details in your query to get more relevant answers

- Prompts should include important details or context
- Otherwise, the LLMs will guess what you mean
- Example: If submitting a proposal to a conference, consider linking to the conference website or copying and pasting the purpose of the conference before drafting your prompt.

1.2 Ask the model to adopt a persona

- Act as an instructional designer
- Act as a season business professional who is adept at corporate communication

1.3 Use delimiters to clearly indicate distinct parts of the input

- Necessary for more complex prompts. Users may choose short-shot conversations.
- Delimiters are like signs or symbols that tell AI, "Hey, this is where a new part starts."
- Example: When you see triple quotation marks like `"""`, "Pay attention, this is a new section."

1.4 Specify the steps required to complete a task

- Clearly list each step in the order they need to be completed, which helps the AI understand and follow the task sequence more effectively.
- The AI's response will closely match the user's expectations, reflecting the structured and ordered input provided.

1.5 Provide examples

- Examples guide LLMs to produce consistent and desired results.
- By providing examples, you're training the LLM to respond in your style and context.
- For instance, fine-tuning a model email response sets a standard for the AI to emulate in similar future responses.
- Consider redundant questions concerning a student assignment or upcoming conference. Keep all your responses in the same chat thread to fine-tune the LLM's training.

1.6 Specify the desired length of the output

- Summarize this article in about 50 words
- Design this lesson plan for a 60-minute lecture
- Create a presentation with 10 slides and 5 bullets per slide

#2 Provide Reference Text

2.1 Tactic: Instruct the model to answer using a reference text

- Language models often invent answers for obscure topics; reference texts reduce fabrications.
- Providing reference texts helps language models answer more accurately, like notes aiding students in tests.
- Example: "Use the attached article to answer questions. If the answer cannot be found in the article, write 'I could not find an answer'."
- Example: I will provide a document and I will ask questions. Your task is to answer the question using only the provided document and to cite the passage(s) of the document used



to answer the question. If the document does not contain the information needed to answer this question then write: "Insufficient information." If an answer to the question is provided, it must be annotated with a citation. Use the following format for to cite relevant passages ({\"citation\": ...})

#3 Simplify Complex Tasks

Example of writing an essay:

- Do not ask AI to write a five-page essay.
- Instead, ask AI to write an outline for a five-page essay
- Next, ask AI to “Draft the ‘Introduction’ using 100 words using APA 7th Edition citations.”
- Consolidate all the components of the essay into a Word Processing Document
- Proofread, revise, edit, fact check, verify references, and add your voice.
- Start a new chat thread, provide context, and upload the essay
- Instead of uploading an entire paper, share portions at a time to ask for feedback

#4 Give LLMs Time to Think

- If you were asked to two large numbers in less than five seconds, you may provide an incorrect answer.
- Similarly, LLMs may make reasoning errors because they may try to answer too quickly. Asking for a “chain of thought” before answering can help.

4.1 Tactic - Ask the LLM to work out the solution before rushing to a conclusion

- Less effective prompt: “Determine if the student’s math solution is correct”
- Improved Approach: “First work out your own solution to the problem. Then compare your solution to the student's solution and evaluate if the student's solution is correct or not. Don't decide if the student's solution is correct until you have done the problem yourself.”

4.2 Tactic - Use inner monologue or a sequence of queries to hide the model's reasoning process (more common for supper prompts or developers)

- This may be necessary in writing tutoring prompts for students because we do not want the student to see the problem being worked out.
- The Prompt may now include: “If the student made a mistake, determine what hint you could give the student without giving away the answer and write ‘Hint’ followed by a hint to help the student.

4.3 Tactic – Ask the model if it missed anything on previous passes

- If you ask LLMs to reference large documents or text, it may miss key points
- Large source documents often lead to premature stopping and missing relevant excerpts.
- Prompting the model with follow-up queries can enhance performance, capturing missed excerpts
- Example Follow-up Prompt: “Are there more relevant excerpts? Take care not to repeat excerpts. Also ensure that excerpts contain all relevant context needed to interpret them - in other words don't extract small snippets that are missing important context.



RICCE Framework for Prompting

RobotDyn. (2023, November 10). How to Use the RICE Framework to Optimize ChatGPT Prompts. Retrieved from <https://robotdyn.com/how-to-use-the-rice-framework-to-optimize-chatgpt-prompts/>

Component	Description
Role	Describe your Role and define a specific role for ChatGPT to align responses with the desired style and substance.
Instructions	Provide detailed instructions to guide ChatGPT comprehensively on the topics and aspects to cover.
Context	Specify the intended audience or purpose to tailor the content's language, tone, and relevance.
Constraints	Set constraints like word count, currency of information, and tone to keep the content focused and relevant.
Examples	Provide examples to influence ChatGPT's output style and substance, serving as a benchmark for quality and tone.

RICCE Framework Example: Writing an Email to Student Concerning Poor Grades

Component	Description
Role	Act as an advisor or instructor, reaching out with concern and support.
Instructions	Express concern, offer resources and assistance, encourage communication, and discuss potential solutions.
Context	A student is struggling in class, possibly feeling overwhelmed or discouraged.
Constraints	Keep the tone empathetic yet professional, maintain confidentiality, and encourage a response or meeting.
Examples	Use a tone similar to previous successful communication with students in similar situations for reference.



References

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