Educator's Podium

Getting to Know ChatGPT – Notes from Our Initial Conversations

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Generative artificial intelligence (AI) is the term used for algorithms that can generate new content including text, audio, images and video.[1] As you likely know, a recent breakthrough in generative AI is the chatbot ChatGPT (Chat Generative Pre-trained Transformer). ChatGPT (https://chat.openai.com) is able to answer a wide range of complex questions and perform many advanced tasks. It is based on an enhanced version of GPT-3, a speech-processing AI model developed by OpenAI. GPT-3 is equipped with a staggering 175 billion parameters, making it the largest and most complex language model ever.[2]

It has been widely reported that within 2 months of becoming available to the public, ChatGPT attracted more than 100 million users. Curious as to whether this powerful new tool could, or should, be used by optometry educators and students, and inspired by scholarly contributions from health care,[3,4] we used multiple prompts to test the bot's capabilities in February 2023.

Opportunities and Caveats

TABLE 1
Sample Optometry-related Prompts for ChatGPT

Input Prompts/Queries We Tested	Our Impressions of the Output
Create a dialogue between a student and lecturer about myopia management.	Positives: - Natural, human-like conversational flow - Able to refine original request (e.g., request four, instead of three, answer choices) - Able to ask for comprehension or true/false-type questions, etc. - May be helpful for overcoming initial writer's block - Able to cater responses for different age groups or expertise levels Shortcomings: - Lack of depth - Vague - Some outputs are persuasive but contain inaccurate information (AI hallucination) - Outputs need to be critically analyzed †publicly available document in the area of expertise ††advises to "stay calm"
Eye drops are superior to surgery in glaucoma. True or False. Create a healthy debate between two students.	
Create an outline to give a 30-minute talk on myopia to parents of preschool children.	
Read this seminal 13-page paper from https://www … Then create five multiple-choice questions each with three answer choices, five fill-in-the-blank questions (with answers) and a 50-word summary OR copy and paste a word document† and ask for the same	
Create a lesson plan (30-min) on eye anatomy for 12-year-olds. Suggest a short fun learning activity too.	
Create a healthy debate on myopia control options between three optometry experts.	
In 200 words or less, explain retinal anatomy for optometry students with an outline for a lecture.	
A point object is located 50 cm in front of a +4 D thin lens. Where would the image form? Include steps.	
How do I fit RGP lenses? Provide an example for base curve selection.	
My 10-year-old patient has +1.50 D of hypermetropia. What do I do?	
I am an optometry student. My patient has pale optic disc. List all tests that I must perform. Then, role-play as my professor and ask questions for my exam revision.	
My patient has RAPD. I am a student. I am a bit scared.†† Please help.	
My excel sheet has two columns (Col A: Student Names, Col B: Marks). Help with an excel formula to identify the names of students who scored between 45 & 50 marks, and 95 & 100 marks (cells A2 to B91).	Positives: - Useful for speeding up administrative tasks - Able to request improved code *remembers previous conversation within the same chat session
Generate a python code for the above query.*	
Generate a python code to find median, upper & lower quartile marks together with a boxplot figure.*	
Where can one study optometry in ___? (name the country).**	Shortcoming: - Often some misinformation **potential optometry applicants may get confused

Table 1. Click to enlarge

Table 1 lists inputs/prompts we used to explore ChatGPT's capabilities along with our general assessments of the resulting outputs/responses. We found that the technology can serve as a useful virtual assistant to optometry educators for certain routine day-to-day tasks, potentially freeing up time for higher-level tasks. In addition, because ChatGPT converses naturally on knowledge and

comprehension, it may enable educators to focus more on facilitating student learning, for example, by empowering students to tackle certain basic learning activities on their own. Similarly, using ChatGPT as a self-directed learning tool is a potential way students can take ownership of their learning, which is key to their success in optometry school and their lifelong success as optometrists. Prompted with custom queries, ChatGPT can provide personalized interactive support, real-time feedback, and assistance with self-assessment and revision.[5]

However, if educators and students are to contemplate uses such as learning facilitation and self-directed learning, they must be aware of ChatGPT's current shortcomings. For example, while the bot is able to predict the next possible word in a sentence, it does not seem to understand whether the information is true. Some of its output may be false, vague, biased and devoid of depth.[6] Also, the output is not always the same even if the same prompt is repeated, and responses seem to be more accurate in the recall of facts and concepts (i.e., lower-order Bloom's taxonomy) than for higher-level, more cognitive questions.[4]

Given the current shortcomings of ChatGPT, some education institutions have partially or completely banned students from using it on school servers.[7] Institutions and educators who are encouraging use of the tool to improve learning[8] should actively guide students with regard to its potential benefits[8] and limitations. For example, much like case discussions and team-based projects, ChatGPT could be used to promote critical-thinking skills, but only with educator coaching on the need for critical analysis of the authenticity of the information it provides. Additionally, because ChatGPT has been shown to write essays[9] and answer questions well enough to pass medical exams, now is a good time for institutions to reinforce the dire consequences associated with plagiarism and cheating.

Conclusion

The functionality and authenticity of ChatGPT will undoubtedly change rapidly. As time goes on, it will likely impact the field in many ways. Already, it has put educators on alert for ChatGPT responses in students' written work. Furthermore, assessments of student competencies that require them to reproduce knowledge without interpretation or application are likely to have a limited role in the future. In the meantime, based on our initial exploration of its utility as summarized here, this AI tool can be cautiously embraced in optometry education.

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We used optometry-related prompts to test ChatGPT (Table 1); however, this article was not written by ChatGPT. The authors have no financial or proprietary interest in any materials mentioned herein.

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