Proactive teaching lessons for effectively using Chat-GPT: Pre-med/Biomedical students

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Context: Subjects allied to medicine expect application of knowledge according to clinical situations such as diagnosis, treatment, and monitoring the prognosis. Chat-GPT can be effectively employed to produce 'smart interfaces of open-AI'. Smart Interfaces for Human-Centered AI have already been in use in medical treatments, including patient Care, breast cancer risk prediction, robot assisted surgeries, and chemotherapy regimens. Therefore open-AI usage can effectively transform into teaching activities in these subjects.

Education level: Mainly new undergraduate students reading medicine, biomedical science or any other subjects allied to medicine.

Learning Aims:

- To introduce the advantages and disadvantages of chat-GPT
- To train the students how Chat-GPT can be used and employed in applied questions by providing examples.
- To encourage the students to effectively create human-open-AI interface to answer applied questions.

Lesson Preparation Students are expected to watch the following YouTube video clips. Viewing this short video would make those who have not heard about Chat-GPT (and other open-AI sources) to read, and/or view other articles/videos.

1. **Introduction to Chat-GPT** - **https://www.youtube.com/watch?v=zuvN8_6QIKk**
   This video explains why using Chat-GPT cannot be considered as plagiarism. It also further elaborates how chat-GPT directly invents the pieces of info that cannot find.
   (Approximately 5 minutes)

2. **Handling Chat-GPT to academic misconduct - https://www.youtube.com/watch?v=uf9gFGnvIgM**
   This video the issue of academic dishonesty in relation to Chat-GPT with some elaboration on how the academics are trying to find ways to circumvent this.
   (Approximately 6 minutes)

3. **Using Chat-GPT demonstration/discussion - https://www.youtube.com/watch?v=4p7CCLgOjzo**
   This is a discussion video demonstrating the advantages and disadvantages of Chat-GPT
   (Approximately 9 minutes)

Learning Activity - Workshop

Large group class discussion about Chat-GPT, how it works, the ethical constraints of using this as a reliable source, highlighting the importance of creating human interface by checking for reliability of Chat-GPT generated text.

This will be followed by on-site activity in which the students are expected to work in groups to answer some examples clinical case study questions or clinical problem (see table). The case study will have several guiding questions. Students will use the Chat-GPT generated answers to these questions to either correctly diagnose and provide treatment regimen or provide a solution for problem.

Duration: 3 Hours

Workshop Questions showing how assessment can enforce students to use knowledge application based on Chat-GPT answers:

Effective assessment questions	Expected outcome

Design a tool to diagnose dementia and provide a prognostic evaluation package using Chat-GPT. Following questions are given to help you with this task.
   (a) What are causes of dementia?
   (b) How can dementia be diagnosed?
   (c) Discuss the treatment modalities for dementia?
   (d) How can the prognosis of dementia treatment be evaluated?
 	
*This question is based on the study by Felix Agbavor and Hualou Liang (2022) https://doi.org/10.1371/journal.pdig.0000168
	Students are expected to use Chat-GPT to obtain the answers to (a) to (d). Then they need to discuss how to use Chat-GPT effectively to capture patient phonetic usage to develop speech patterns to be used in diagnostics and prognostic markers.
	By this way, student will understand the ways to productively use Chat-GPT generated text via human-open-AI interface.

A 60-year-old male was recently admitted to local NHS hospital. Clinical investigations revealed he had a left foot ulcer (see figure). He was extremely obese and complained of tiredness; nausea; giddiness; frequent urge to urinate; especially at night. He also complained of partial loss of vision, excessive trust and hungry. 1. What is the probable diagnosis for each this subject? Provide a detailed justification for your answer using the clinical symptoms and test results. 2. Using your knowledge in clinical sciences, discuss how this condition would lead to atherosclerosis. 3. Discuss the different therapeutic approaches that can be applied to this patient to lead a normal life.	Chat-GPT can generate answers to both traditional and effective assessment questions in a descriptive way. However, student may need to read the answers to understand the underlying cause for these symptoms. The Chat-GPT may possibly show the cause is diabetes, but students need to discuss (a) the link between (a) diabetes and the symptoms and (b) how this may lead to atherosclerosis and (c) a possible therapeutic modality with justification (Chat-GPT might offer therapeutic modalities, but students should be able to justify them. This is again aims to enhance the development of Human-Chat-GPT interface and interactions.