Proactive teaching lessons for effectively using Chat-GPT: Teacher Training

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Context

Open-AI such as Chat-GPT being used by the students is inevitable. Therefore, academics and teachers should develop proactive strategies to make the students effectively use as a learning enhancement tool. They should move away from providing assessment from knowledge reproduction to producing assessment for learning and knowledge application. This interactive lesson plan is developed for teachers/teacher trainees to design assessment that would help the students to use Chat-GPT to gather information and then use their own innovation to produce answers to the assessments.

Education level

Higher education/teacher training students who are taking Post-graduate Certificate in Education (PGCE in UK) and equivalent worldwide for teaching biology and/or chemistry in UK or the equivalent in other countries.

Lesson Plan Title: Using Chat-GPT to design written assessments to minimise the use Chat-GPT by the students.

Learning Objectives

By the end of this lesson students will be able to:

- Understand how and why AI-writing works to write assignments.
- Discuss the implications of direct questions in promoting plagiarism, contract cheating, and open-AI generated answers.
- Critically analyse AI-generated content to ensure its accuracy and produce assessments that expect knowledge application.
- Synthesise the ways questions/tasks can be set for students to learn via assessments whilst using Chat-GPT

Duration: 3 hours onsite activities plus pre-sessional preparation

Lesson Preparation

Prior to the class, students should view this YouTube video. 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.

 https://www.youtube.com/watch?v=fdY3otScGq8

Learning Activity

- The learning activity would start with a general discussion about Chat-GPT and other open AI resources.
- The moderator will also introduce the concept of "teaching-out" academic misconducts via effecting assessment strategies.
- This will be followed by small group activities in which the participant would use Chat-GPT to generate answers for biology and/or chemistry questions suitable for university entry level students.
- Individual groups will share their questions and Chat-GPT generated answers to the large group and discuss the ways to reformat the questions either to minimise any potential use of Chat-GPT or use the Chat-GPT answers as learning enhancement.

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

Traditional essay question	Effective assessment question	Expected outcome
Discuss the how mitochondria produce energy (ATP) during a) aerobic and (b) anaerobic respiration	With the help of a schematic diagram or flow chart explain the ATP production in mitochondria during (a) aerobic and (b) anaerobic respiration	The effective assessment question would make is difficult for student to complete the task just by using Chat-GPT They may still use Chat-GPT to generate the text, then they need to transform that into a meaningful flow chart. By this way, student will be forced to check the Chat-GPT answer in relation to published books/articles, understand the answer, and then draw the flow chart.
Using glucose as an example, explain the term ' functional isomers.	Discuss the term "functional isomers" by drawing the (a) long-chain and (b) cyclic structures of glucose and fructose. You are also expected to identify/name the different functional groups in these structure	Chat-GPT can generate answers to both traditional and effective assessment questions in a descriptive way. However, student may need to read the answer, and readjust it to show the aldehyde and ketone functional groups in glucose and fructose. By doing so they will understand the term "functional isomers" (than just passing on what Chat-GPT has produced
Write 500-word essay on the environmental effects of global warming and explain how this can be minimised	This question can be transformed into three parts for a group work. Each student will be asked to find answers using Chat-GPT. Then they are expected to work together to produce a 500-word critical summary of their findings (and submit with their induvial Chat-GPT generated essays 1. Write 500-word essay on global warming. 2. Write 500-word essay the environmental effects of global warming. 3. Write 500-word essay on how to minimise global warming	The assessment ensures that ach student to read the essays produced by Chat-GPT, take short notes, and explain their findings to their group. Then they will work together to produce a critical analysis of the information gathered from Chat-GPT. Although, there is a chance to use the Chat-GPT to produce the final critical analysis, the task expects them to submit individual Chat-CPT generated essays. This ensures their own critical analysis