



TEACH WITH ChatGPT USING AI-POWERED CHATBOTS BEFORE AND DURING MARITIME ENGLISH CLASS

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Abstract. ChatGPT and other chatbots using LLMs (Large Language Models) have gained fame since the Fall of 2022. Since then, many maritime subject teachers and instructors have explored their capabilities and some have tried to implement their use into their professional practice. This paper presents several ways in which a large conversational language model can be used to build the pedagogical scenario for a course, define the course's objectives, set the target level and learning outcomes, produce and refine the learning tasks, align the course, set assessment criteria. It also describes how custom GPTs can be programmed to automate a number of time-heavy teacher tasks during class planning and preparation. Lastly, it shows examples of learning tasks during which a chatbot is used in class by students.

Keywords: Artificial Intelligence; Chatbot; ChatGPT; Maritime English; Curricular Design.

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1. INTRODUCTION: AI IN EDUCATION

1.1. The Advantages of AI

Artificial intelligence (AI) is a technology which enables computers to simulate human intelligence and problem-solving capabilities. Some subfields of AI, such as Natural Language Processing (NLP), machine translation, or automated speech recognition, have long been used in language teaching and learning, both in class or in the context of home usage. At school, because it allows immediate feedback as a response to learner input, because it allows to address the particular needs and differences in pace for each learner, and because it alleviates the workload of language teachers by speeding up repetitive tasks, AI is now commonly and routinely used for automated feedback during learning, for final assessment and certification (Fu et al., 2022), as well as for lesson preparation. Although imperfectly, AI allows individual tutoring, and provision of content that is tailor-made for each learner (Pokrivcakova, 2019), for all language abilities or interactions, be it listening, speaking, reading or writing (Huang et al., 2023).

Among the benefits of using AI mentioned in the literature, are the ability to provide real-time quality feedback (Chen et al., 2021), personalized language learning experiences (Zhang & Zou, 2022) or a decrease in learner anxiety (Wang et al., 2024). Similarly, Huang et al. (2022), who analyzed two dozen empirical studies on the usefulness of chatbots in both L1 and L2 learning, found that chatbots can both improve learning and create a more positive and more cohesive learning environment. In a similar study, Katsarou et al., (2023) looked at the affordances and the challenges of AI in English as a Foreign Language (EFL) teaching and learning, and found that AI chatbots can allow for better language interaction, and improve learner motivation, two crucial elements of language learning. Moreover, because Large Language Models (LLMs), such as ChatGPT or Claude, are cloud-based, they allow learning to be more ubiquitous.

1.2. The Limits of AI

Nevertheless, AI use also confronts teachers and learners with challenges, such as computer-literacy and ease of usage, leading to varying degrees of acceptance among teachers and learners (An et al. 2023, Pokrivcakova, 2019), concerns regarding reliability and accuracy issues (Wang et al., 2023, Zhou et al., 2023), and ethical concerns (Godwin-Jones, 2022; Hockly, 2023). In a recent study, Ji et al. (2023) argued that, although there has been extensive discussion of the supposed benefits of AI in the classroom, empiri-

cal data regarding its quantifiable benefits is, for the moment, scarce. Katsarou et al., (2023) also found that the use of chatbots in class can be detrimental to learning as this may significantly increase the cognitive load of learners in class. Also, over-reliance on AI could diminish the role of human teachers and instructors who provide not only subject knowledge and pedagogical competence, but also guidance, mentorship, and emotional support, something an LLM is currently not able to provide, or even to sense is required (Chen & Lin, 2023). Lastly, because of the learning curve involved in the discovery and mastery of any new technology, it is reasonable to expect the integration of AI in lesson preparation and delivery to cause an increase in the workload of teachers and instructors, albeit a temporary one.

1.3. Research Regarding AI in Language Education

The past decade has seen a rapid increase in the number of studies focusing on AI in language learning. Since the Fall of 2022, the rapid development of Large Language Models (LLM) such as GPT3, GPT4, Claude 3 or Bard (now Gemini), has caused the amount of research in this field to soar (Huang et al., 2023; Pereira et al., 2023). Zhu & Wang (2025) have found that the annual number of peer-reviewed research papers produced on the specific topic of AI for language education has grown tenfold between 2018 and 2023, almost half of the papers by first authors from China. Most papers have focused on writing, reading (comprehension), grammar and vocabulary learning (Liang et al., 2023). Few have looked at the use of AI by teachers during lesson planning or curricular design.

This paper will, first, explain how a conversational AI can be used during lesson planning. It will then elucidate how custom GPTs can be tailored for specific teaching and learning tasks. Last, we will look into a few classroom activities in which a conversational AI such as ChatGPT can be used.

1.4. Available AI Chatbots

There are many different AI chatbots. Although most are freely accessible, many (including OpenAI's ChatGPT, by far the most popular) also offer premium versions, which give access to the most recent version of the LLM, give access to several language models (task-specific), and add functionalities such as real-time web access, file upload, etc.

Table 1 lists 5 LLMs, among the most popular, and compares them, listing their pros and cons. The techniques and examples mentioned in this paper have all been generated with the premium version of

Table 1. A few popular LLMs with their pros and cons

Name	Pros and Cons	
ChatGPT https://chatgpt.com/	• Writing skills • STEM knowledge • Conversational • Multimodal (text + media)	• Boots free users down to GPT-4o-mini when at capacity
Microsoft Copilot https://copilot.microsoft.com/	• Access to the internet • Links back to sources • Uses OpenAI's LLM	• Grounded in Bing • Not as advanced as ChatGPT for advanced reasoning
Claude https://claude.ai/	• Upload document support • Chat controls • Light and dark mode	• Unclear usage cap • Knowledge cutoff • Only Sonnet4 is available to free users
Perplexity.ai https://www.perplexity.ai/	• Links to sources • Access to internet • Simple UI	• Paid subscription required for GPT-4 access • Some irrelevant suggestions
Gemini (Bard) https://gemini.google.com/	• Access to Google • Good text editing skills	• No sources • Can't help much with code

ChatGPT, but will work with the free version, with the previous version of the LLM, or indeed with any large language model.

2. USING ChatGPT FOR LESSON PREPARATION

2.1. How an LLM Works

It is important to understand that, although it mimics human intelligence, an LLM is not really conscious of what it writes. Ultimately, an LLM works in a way that is similar to the word completion or sentence completion functionality of a smartphone. Thus, what it seeks to do is to append something to the end of the sentence, to continue (or end) it in a manner that is coherent with its training data. In other words, what it tries to do is predict the most probable (in the sense of "that best fits the training data") word, sentence, or paragraph, based on the context (i.e. what is to the left of, or before, the word, phrase, sentence or paragraph to add). The context also includes any information in the prompt, or indeed in the pre-prompt (for custom GPTs), or in previous exchanges in the same conversation. The specific size of the context taken into consideration varies from one LLM to another, but it is commonly around 30,000+ tokens, or about 10,000 words (for GPT4, as of 2025). For some LLMs (often for the premium versions) the context will also extend to uploaded files (including but not limited to text, images, music or other sound, slideshows, or spreadsheets), or to specific web pages referenced for that purpose. One can for example upload a file, and then ask ChatGPT to "inspect the file", before asking it to perform a specific task (like a summary or the creation of a particular type of exer-

cise), or point it to the URL of a web page or other online resource, before requesting a specific action. For instance, one can point ChatGPT to the URL of a YouTube video, and ask it to create comprehension questions based on what the video says, or to read a press article and perform a similar task.

2.2. Give it Some Character

LLMs such as ChatGPT can also be given context in the form of a "persona", in the prompt. For subscribers, this can also be done in the "pre-prompt" that users can type in their profile. It can also be done in a specific manner for each custom GPT that one creates. To do this, one can give ChatGPT a "job title", or occupation or bio, such as:

"You are an experienced maritime English teacher. You have extensive knowledge of technical vocabulary relating to ships of all types and of marine VHF communication procedure. You are also a teacher trainer who specializes in curricular design, lesson planning, competence-based assessment of learning, and an expert in the use of educational technology."

Or:

"You are the experienced OOW of one of the vessels described in the attached file vessels_data.pdf. You communicate over the VHF using only SMCP-compliant phraseology that abides by marine VHF procedure. Each time you speak on the VHF, your utterance has the form: [address / identify / message marker / message / over]. See attached file vhf_examples.pdf for examples of valid sentences. You respond to interactions in clear, unequivocal, VHF English."

If this is done in the setup of a custom GPT, it will require to be done only once. For every subsequent interaction, ChatGPT will assume this is still true and react accordingly. This strategy can significantly improve the quality of the output, making it more specific, less generic, more akin to what a professional would produce.

2.3. Prompt Engineering Strategies

2.3.1. Make the Chatbot Prompt Itself

Another way to significantly improve the quality of the output of any LLM is to make better prompts. One easy way to do this is to seek the LLM's assistance in writing the prompt that one will then feed to the model, particularly if one directs the LLM to narrow in on the objective by asking questions to us. Consider, for instance:

"I am a language teacher. I teach maritime English in a naval academy, and I want you to help me plan my next lessons. Help me write a prompt to improve the quality of your output before we start. You can ask me a max of 10 questions to better understand the topic of the course, the context in which I'll be teaching, to whom, and what I am trying to achieve."

The LLM would then ask questions about the course planned, and propose a prompt, which the user would then feed to the LLM, to generate an output.

There are many strategies to use an LLM for lesson planning. In this paper, we propose two: One is RAFT; another is SONAR. They are detailed below.

2.3.2. Example Framework: RAFT (Role, Anchor, Focus, Task)

This custom GPT is available (free of charge) at: <http://tiny.cc/RAFT>

R – Role (AI Persona)

→ Define the AI's persona or identity.

E.g., *"You are a language teaching assistant with expertise in naval terminology."*

E.g., *"You are an expert in pedagogical design and lesson preparation. You specialize in the design of lesson plans that closely fit the learning needs of working professionals. You are a master in the competence-based approach, and have a knack for active learning, IT and education technologies."*

A – Anchor (Context)

→ Set the anchor by grounding the request in the lesson's pedagogical context:

- Theme or subject matter
- Target learners (e.g., naval cadets, engineering students)
- Level (e.g., CEFR level, university year)
- Teaching approach (task-based, content-based, etc.)
- Assessment strategy (course work, final test, project-based)
- Course format (in-class, online, hybrid)
- Duration of course or unit; duration of each individual class

F – Focus (Task)

→ Specify what the AI needs to do.

E.g., *"Create a vocabulary matching activity using naval terminology (from the vocabulary list attached)."* (narrow scope)

E.g., *"Create a detailed lesson plan, including a detailed schedule, detailed list of in-class tasks (with expected duration)."* (broad scope)

T – Template (Format)

→ Define the desired format for the AI's output:

- Bullet points, table, interactive script, slide outline, PDF, etc.

E.g., *"Create a table, matching each lesson with the detailed grammatical, lexical and cultural objectives, a list of content/resources."*

E.g., *"Prepare a detailed lesson plan, output to a clear and structured (with sections and subsections, each clearly identified by a title) pdf document. Include a table of contents with page numbers. Make a document that can be used as is by a teacher to start preparing the lessons. For each learning activity or task, prepare the instructions to give to the students, and at least a few sample questions. Pay attention to fonts and formatting in order to be very legible."*

2.3.3. Example Framework: SONAR (Set, Orient, Navigate, Adjust, Render)

This custom GPT is available (free of charge) at: <http://tiny.cc/SONAR>

S – Set (Set the Role: the persona)

→ Define the AI's persona or identity.

E.g., *"You are a curriculum design assistant specializing in task-based learning for naval officers."*

O – Orient (Initial Focus)

→ The AI asks clarifying questions to understand the task at hand. It gathers information through dialogue with the user about:

- Learning outcomes
- Target students (level, background, needs)
- Pedagogical approach (e.g. inquiry-based, ESP, CLIL)
- Constraints (duration, format, resources)
- Assessment goals
- Delivery format (distance, in-person, hybrid)

N – Navigate (Design Phase)

→ AI and user co-build the course:

- Course structure / modules
- Learning tasks & media
- Scaffolding strategy
- Integration of documents, exercises, and platforms
- Alignment with outcomes

A – Adjust (Review & Refine)

→ AI suggests and implements improvements, flags inconsistencies, proposes adaptations for different contexts or student profiles. This includes reflecting on:

- Learning impact
- Task appropriateness
- Pedagogical coherence
- Assessment alignment

R – Render (Output Format)

→ User defines how the AI should deliver the lesson plan:

- A PDF syllabus?
- Editable lesson plans in Markdown?
- A mind map?
- Slide deck outline?
- Activity sheet?

2.4. Using ChatGPT for Repetitive or Time-heavy Lesson Preparation Tasks

ChatGPT is good at producing content for learning. It excels at producing MCQ quizzes for grammar, for vocabulary, or for reading comprehension (it can work directly from the document the students will have to read, uploaded to the platform). As an added bonus, if one gives it an example, it can produce the MCQs directly in a Moodle-compatible format (such

as Aiken, for example), to quickly create large batches of MCQs to populate a database of questions, in order to easily generate randomized tests.

If one uploads the script of a video, and the list of comprehension questions the students will have to answer, ChatGPT can instantly create another version of the activity, with different questions. Thus, allowing for a communicative activity: once each student finishes answering the questions, they can tell their peers what they understood, and the others will still have something to tell them.

If given an entire lesson plan, or better yet several lesson plans, including the detailed list of class activities, texts and scripts of videos, and all exercises (and correct answers), ChatGPT will then produce a lesson plan with a similar structure but based on a different set of texts, media, and desired learning outcomes.

3. USING ChatGPT AS A TEACHING ASSISTANT OR STUDY PARTNER

Whenever we propose a speaking task, we can ask learners to discuss with ChatGPT instead of a fellow student. By doing this we ensure that at least one of the two participants to the dialogue (the ChatBot) will be fully engaged, and will use correct language. This can be done in writing, and even in speech. Alternatively, students can be asked to prepare (by conversing with the AI) an interaction which they will then have in person, with a fellow student.

Research has found that AI chatbots can be used in support of learning writing (Resch & Yankova, 2019). For example, when working on essay writing, learners can be asked to use ChatGPT to write an essay. The students' job will be to instruct the AI to do this. By asking students to give detailed instructions to the AI about the structure of the essay (link words, structure of a paragraph, difference between argument, reference and example), and to provide all arguments and examples, students will focus on the form. We have observed that this focus on the form later transfers to the essays that students write without the assistance of the AI.

4. CONCLUSION

In a recent study (Ji et al., 2023), researchers suggested that future studies should explore how conversational Chatbots can help reducing the workload of teachers, while allowing learners to better leverage the power of LLMs. Research has also found that AI conversational agents that serve as educational companion or tutors can help learners study

more effectively (Hayashi, 2013; Stathakarou et al., 2020). Moreover, many maritime training institutions are cutting hours, in an attempt to reduce costs. AI learning companions may be of help in such situations.

Chatbots are a focal point in educational technology (Bahja et al., 2020). Many teachers and instructors are now using AI every day. It will not be un-invented, and is here to stay. Thus, we need to adapt and embrace it, so as not to have it imposed to us, but to make the best of it. Research should indeed attempt to quantify both the benefits and the constraints that such tools pose in a teaching situation.

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