Revolutionizing Education in the AI Era: Customizable GPTs for Enhanced Student Engagement and Learning.

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Abstract

In the swiftly evolving landscape of educational technology, the integration of Artificial Intelligence (AI), particularly Generative Pre-trained Transformers (GPTs), stands out as a transformative approach to learning. This proposal explores the potential of custom GPT models to generate structured, interactive, and tailored lesson plans from diverse informational sources such as articles, books, and online content. These AI-driven tools facilitate 24/7 access to tailored learning resources, enabling students to engage with educational content anytime, anywhere, thus supporting asynchronous learning models. Our study focuses on a prototype GPT model designed to distill key themes and concepts from given material and organize them into comprehensive educational modules, complete with quizzes, exercises, feedback mechanisms, and a scoring system. This approach not only offers flexibility in learning but also ensures that educational resources are personalized to individual learning styles and needs. The case study of applying this model to [**Agile Project Management**](https://chat.openai.com/share/dd16704d-1101-4a3d-bebc-7329b6e3dd49) demonstrates a significant enhancement in student engagement and the learning process. This workshop paper aims to elucidate the implications of such AI-driven educational tools in global academic environments, highlighting their potential to revolutionize student-teacher interactions and learning methodologies, especially in fostering a more adaptable and personalized educational experience.

TLC@AOM Submission Topics: **Teaching**

**Statement of Attendance:** At least one presenter agrees to register for and attend TLC@AOM in person should the proposal be accepted.

# Topic / Introduction

The realm of education has continually evolved to incorporate technological advancements, aiming to enhance both the delivery and assimilation of knowledge. In recent years, Artificial Intelligence (AI) has emerged as a pivotal force in this evolution, offering new frontiers in personalized and adaptive learning experiences. This proposal delves into the innovative application of Generative Pre-trained Transformers (GPTs) in education, a domain traditionally reliant on more conventional teaching methodologies. The advent of novel features like custom GPTs from OpenAI opens avenues for creating highly interactive, accessible, and customized learning experiences, catering to the diverse needs and learning styles of students worldwide. Our proposal explores the development and application of a custom GPT models designed to automatically generate structured lesson plans from various information sources which can be shared with students, thereby transforming the standard approach to education and student engagement.

The integration of AI in education is not a novel concept; however, its application has predominantly been limited to areas like adaptive learning systems, automated grading, and personalized learning recommendations. The emergence of advanced AI models, particularly those based on machine learning and natural language processing, has set the stage for more sophisticated applications in the educational sector. Generative AI, especially in the form of GPTs, represents the next step in this evolution, offering unprecedented capabilities in content creation and curriculum development. Historically, educational content creation has been a manual, time-intensive process, often leading to a one-size-fits-all approach that overlooks individual learning preferences and needs. The proposed GPT model challenges this paradigm by enabling the automatic generation of tailored educational content, aligning with both the subject matter and the unique teaching styles of educators.

# Interest

The integration of Generative Pre-trained Transformers (GPTs) in education represents a significant innovation in teaching methodologies, a topic of great relevance in our technology-driven era. This shift is particularly crucial as we address the challenge of maintaining student engagement and improving learning outcomes in both online and traditional settings. With students increasingly utilizing AI tools like ChatGPT for academic purposes, the structured integration of such technologies becomes imperative. This approach aligns with current technological trends and leverages students' familiarity with AI to enhance learning efficacy. By embracing AI in education, we adapt to the changing dynamics of student interaction and preferences, ensuring that educational practices remain effective and relevant in the digital landscape. Furthermore, a central theme of our discussion is the increasing demand for personalized and customizable learning experiences within educational settings. As the traditional one-size-fits-all approaches in education rapidly become obsolete, the ability of AI, and specifically GPTs, to tailor educational content to individual learning styles and needs emerges as a revolutionary tool. By harnessing the existing capabilities of customizing GPTs, educators can not only adapt material to their own pedagogical preferences and teaching methods but also extend the reach of their instruction beyond the traditional classroom. This adaptation allows students to engage with both the professor's insights and the course material in a more flexible and dynamic manner, effectively having access to tailored educational resources at any time and place. This focus is essential, as it offers educators and institutions the means to provide a more effective, individualized, and engaging educational experience. **Session Description:**

| **Time** | **Segment** | **Description** |
| --- | --- | --- |
| 10 minutes | Introduction | Introduction to the topic and relevance in current education. Outline of session objectives. |
| 10 minutes | Overview of AI in Education | Presentation on the role and evolution of AI in education. Identification of gaps in traditional methods. |
| 15 minutes | Deep Dive into Customizable GPTs | Explanation of GPTs and customization aspects.  Showcase of GPT adaptability to learning styles and needs. |
| 10 minutes | Interactive Demonstration | Live demonstration of GPT model. Audience interaction with the model. |
| 10 minutes | Case Study and Results | Presentation of a case study (Agile Project Management). Discussion of outcomes and dynamic. |
| 5 minutes | Q&A and Discussion | Open floor for audience questions. Discussion and deeper exploration of audience interests. |
| 5 minutes | Conclusion | Summary of key points. Implications and future possibilities of GPTs in education. Information on further resources and involvement opportunities. |

# Takeaways

# Attendees of the session will leave with a range of valuable insights, skills, and resources,

# explicitly geared towards enhancing their understanding and application of AI in

# educational settings.

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| **Key Takeaway** | **Description** |
| Comprehensive Understanding of AI in Education | A thorough understanding of how AI, particularly GPTs, can be integrated into educational practices. |
| Practical Knowledge of Customizable GPTs | An in-depth look at the capabilities and customization options of OpenAI’s GPTs features and strategies to cater to various teaching styles and learning needs. |
| Experience with Interactive AI Tools | First-hand experience from the interactive demonstration, providing a practical understanding of how GPTs function in real-time educational scenarios. |
| Personal GPT Creation | Participants with existing subscriptions will have the opportunity to take home their own customized GPT model. |

During the session, attendees will gain valuable insights enabling them to enhance their teaching methods, curriculum design, and strategies for student engagement. The session will provide practical ideas on the integration of AI tools into a variety of educational contexts, ranging from traditional classroom settings to the development of online courses. This knowledge will empower educators to adopt innovative approaches, leveraging the capabilities of AI to create more dynamic, personalized, and effective learning experiences for their students.