

Title: ChatGPT: Explanation of Physics Concepts to Suit the Target Audience

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Abstract:

This bachelor's thesis explores the potential of using the language model ChatGPT to explain physics concepts, taking into account different target groups in education. The first part of the thesis presents general recommendations for creating effective prompts (so-called *prompt engineering*) based on a literature review, and introduces several prompt patterns that can serve as templates for more efficient interaction with the model. These templates are subsequently tested using questions related to electric field strength. The second part of the thesis focuses on analyzing ChatGPT's responses to a question concerning the dispersion of light from three perspectives: a primary school pupil, a high school student, and a university student. The results demonstrate that the model is capable of recognizing the user's level of physics education and adjusting the depth, language, and structure of its responses accordingly. The study also confirms that the quality of the output strongly depends on the quality of the input prompt. When used appropriately, ChatGPT can serve as an effective educational support tool in the teaching and learning of physics, both for students and for educators.

Keywords: ChatGPT, physics concepts, prompt engineering, physics education