

Chapter 6

A Conversation With ChatGPT on Its Role in Teaching and Learning Real–World Problem Solving in School Mathematics: A Personal Experience

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ABSTRACT

The purpose of this chapter is to describe and analyze the author's conversation with ChatGPT's on teaching and learning real-world problem solving in school mathematics. The chapter is motivated by three considerations. First, extend existing research on ChatGPT by exploring its capability to generate and solve mathematical problems that contextualize the user's specified clues. These capabilities include problem-solving, real-world contextualization, and advanced language understanding. Second, extend the research on ChatGPT to include its role in teaching and learning real-world problem solving in school mathematics. Third, vet ChatGPT's proclaimed problem-solving capabilities against the author's experience in researching, publishing, teaching, and learning mathematical problem solving.

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INTRODUCTION

The conversation with ChatGPT started with a question about its identity. Below is its response:

Question 1. Who are you? Briefly introduce Chat GPT to those who do not know you.

ChatGPT:

I am ChatGPT, a sophisticated artificial intelligence language model developed by OpenAI. My primary function is to understand and generate human-like text based on the prompts and questions I receive. I've been trained on a vast amount of text from the internet, which allows me to provide information, answer questions, generate text in various styles, and assist with a wide range of tasks. My capabilities span from explaining complex concepts to providing creative writing and assisting with problem-solving. I'm designed to be a versatile and helpful AI companion for a variety of tasks and inquiries, which makes it a unique and valuable tool for a wide variety of applications.

The purpose of this article is to describe and analyze the author's conversation with ChatGPT's on teaching and learning real-world problem solving in school mathematics. The article is motivated by three considerations. First, extend existing research on ChatGPT by exploring its capability to generate and solve mathematical problems that contextualize the user's specified clues. These capabilities include problem-solving, real-world contextualization, and advanced language understanding. Second, extend the research on ChatGPT to include its role in teaching and learning real-world problem solving in school mathematics. Third, vet ChatGPT's proclaimed problem-solving capabilities against the author's experience in researching, publishing, teaching, and learning mathematical problem solving.

ChatGPT's Capabilities in Real-world Problem Solving

In its response to the question on how it differs from other existing artificial generative intelligence tools (see question 2), ChatGPT explains that its problem-solving capabilities are designed to assist with problem-solving tasks across various domains. It can provide step-by-step guidance, explanations, and strategies to help users solve complex real-world problems. Furthermore, ChatGPT explains that its capability of real-world contextualization provides responses that are framed within real-world scenarios. It can provide examples and explanations about users' specific situations and needs. Finally, ChatGPT's advanced language understanding is based on its utilization of state-of-the-art natural language processing techniques, which

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