Promptly Speaking: The Relationship Between AI Prompts, the Results You Receive, & Their Effect on Student Learning

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This project investigated which type of prompt would generate the most educationally effective response from Gemini as perceived by ninth grade students. Three ninth grade classes completed a pretest measuring their background knowledge and opinions on artificial intelligence and its use in education using a Likert scale. Students first submitted a complex prompt focused on a different prompt engineering strategy: personality themed, format themed, or a combination of the both. After reviewing the responses, students completed a post test evaluating perceived clarity, engagement, and usefulness. The results indicated 74 percent of students preferred responses generated from the complex prompt over the baseline prompt. Students reported that structured prompts produced clearer, more detailed, and more grade appropriate explanations. The format themed prompt was valued for its specificity , the personality themed prompt for its conciseness, and the combined prompt for balancing clarity and engagement. Additionally, 70 percent of students agreed that artificial intelligence is useful in education when used appropriately. These findings suggest that structured prompt design improves the perceived educational effectiveness of AI generated responses. The study indicated that teaching students intentional prompt construction may enhance the quality and responsibility of artificial intelligence use in academic settings.

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