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Scaffolding Student Learning with ChatGPT

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Abstract. Students are increasingly using generative artificial intelligence (AI) tools to perform academic tasks. Universities are seeking ways to help students apply such tools productively and ethically in their studies and future careers. Research has explored how students view and use AI, how faculty are implementing it within specific disciplines, and how it expands traditional pedagogical practices. The current study examines an innovative assignment design in an Introduction to Organizational Behavior course, where students use ChatGPT to receive feedback on a team management challenge task before submitting their work to their professor. The study answers the call to investigate the implications of AI for pedagogy that complements and improves traditional teaching. Findings identified variations in how students applied the ChatGPT feedback, and in many cases, with limited critical analysis. The outcomes of this study highlight the potential of AI for iterative learning albeit a need for greater support related to AI literacy development.

Keywords: generative artificial intelligence, AI, ChatGPT, assignment quality, higher education.

1. Introduction

The rapid development and adoption of generative artificial intelligence (AI) is resulting in significant changes in higher education (Bahroun, 2023). Specifically, students are increasingly using ChatGPT (OpenAI, 2022) for a variety of academic purposes, such as creating written text, supporting research, and assisting with data analysis, coding, and personalized learning (Alqahtani et al. 2023; Bahroun et al., 2023; Balabdaoui et al., 2023; Dergaa et al., 2023; Stojanov, 2023; Strzelecki, 2023). Universities and faculty within them are grappling with how to effectively use AI tools to help students learn and to prepare them for future employment while also ensuring ethical behavior (Eager & Brunton, 2023; Konecki et al., 2023; Stojanov, 2023; Pinto et al., 2023). Indeed, discussion is widespread regarding the ethical, cognitive, and academic impact of AI tools in higher education (Alqahtani et al., 2023; Chaudhry et al., 2023; Cotton et al., 2023; Dalalah & Dalalah, 2023; Dergaa et al., 2023; Eager & Brunton, 2023; Iskender, 2023; Masters, 2023; Meyer et al., 2023; Perkins, 2023; Peters et al., 2023; Yilmaz & Yilmaz, 2023) with critics arguing that ChatGPT undermines

education, supports plagiarism, and encourages avoidance of learning (Chaudhry et al., 2023; Cotton et al., 2023; Currie, 2023; Dergaa et al., 2023; Eager & Brunton, 2023; EduKitchen, 2023; Perkins, 2023).

Empirical research on the growing use of generative AI in higher education is exploring the factors driving students to use tools like ChatGPT (Bahroun, 2023; Strzelecki, 2023; Paul et al., 2023), how they are incorporating AI for academic purposes, and how such usage influences learning, performance, and personal development (Alqahtani et al., 2023; Dalalah & Dalalah, 2023; Paul et al., 2023), thus going beyond theoretical discussions and commentaries on ChatGPT in higher education (Abbas et al., 2024). A recent literature review calls for more investigations of the implications of AI for pedagogy, particularly how it complements and improves traditional teaching, its use in assessment and evaluation, and the identification of strategies for student adoption (Bahroun, 2023). To support this call, the current study examines an innovative assignment design in an Introduction to Organizational Behavior course, where students use ChatGPT to receive feedback on a team management challenge task before submitting their final work to their professor.

2. Literature Review

Students in today's higher education institutions must not only gain knowledge about AI but also develop the skills to use it effectively for academic purposes and future careers. As such, research has examined effective instructional practices for integrating AI into higher education. These studies have explored pedagogical approaches and ethical considerations for AI application in various academic disciplines such as computer science, engineering, medical education, nursing education, and communication (Bahroun, 2023). The need for plagiarism detection tools (Chaudhry et al., 2023; Eager & Brunton, 2023; Iskender, 2023), supportive learning environments, and faculty development programming has also been emphasized (Eager & Brunton, 2023). Other studies have focused on ChatGPT's impact on learning outcomes and its limitations in replacing human performance on assignments (Chaudhry et al., 2023) as well as its potential for instructor grading of student work and providing student support (Iskender, 2023). Risks such as diminished critical thinking and increased inequalities in educational contexts have also been identified (Iskender, 2023).

Research has also examined factors contributing to student adoption of AI. Students' comfort with and frequent use of AI was found to result in habit formation along with high performance expectations and enjoyment of its use (Strzelecki, 2023). Similarly, students' positive emotions, digital efficacy, and desire for autonomous learning predicts current and future AI usage (Wang & Li, 2024). Academic stressors, such as workload and time constraints, contribute to students' reliance on ChatGPT (Abbas et al., 2024). Students motivated by