Chapter 10
An Investigation Into Turkish University Students' Acceptance of ChatGPT in Education

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ABSTRACT

This study aimed to examine the factors influencing university students' acceptance of ChatGPT in education. The research is grounded in the unified theory of acceptance and use of technology (UTAUT), which includes performance expectancy, effort expectancy, social influence, and facilitating conditions as key factors. The study was conducted at a state university in Turkey with a total of 208 student participants. Structural equation modelling (SEM) analysis was utilized to explore the relationships among these factors and the students' behavioral intention to use ChatGPT in their education. The findings revealed that performance expectancy and effort expectancy were positively associated with students' intention to use the ChatGPT system. Yet, social influence and facilitating conditions did not show a significant relationship with students' acceptance of the ChatGPT system.

INTRODUCTION

Artificial Intelligence (AI) is designed to generate novel outputs in response to natural language inputs. It is trained using data sourced from various online platforms to facilitate the creation of these outputs. The underlying technology of AI

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relies on Machine Learning algorithms, which enable it to progressively improve its performance by learning from data.

With the recent tools and applications offered by AI technologies, the education area has started to transform traditional instructional methods. UNICEF (2021, p.16) provided a definition related to the use of AI in education: "AI refers to machine-based systems that can, given a set of human-defined objectives, make predictions, recommendations, or decisions that influence real or virtual environments. AI systems interact with us and act on our environment, either directly or indirectly. Often, they appear to operate autonomously and can adapt their behaviour by learning about the context. In education, AI tools can be used for smart instruction, automated assessment, and personalized learning (Oranga, 2023). Furthermore, AI systems have the capability to generate diverse forms of digital content, such as text, images, videos, and audio, in response to user inputs (The Alan Turing Institute). As a result, AI tools can support education while enhancing productivity and instructional outcomes, providing instant feedback and encouraging student engagement (Adıgüzel et al., 2023).

Chatbot is one of the software offered within the AI technology. Chatbot system is structured as "a software that talks with a user and is a virtual assistant able to answer a number of user questions, providing the correct responses" (Colace et al., 2018, p. 528). Chatbots use natural language processing and machine learning algorithms to communicate with humans. Chatbot users interact with the software by providing text or voice input and by obtaining text or voice output (Hamzah et al., 2021). Chatbots are one of the commonly employed AI technologies for supporting instructional activities (Okonkwo & Ade-Ibijola, 2021). Chatbots can present more interactive learning experience, provide immediate feedback and support, support personalized learning, enhance student engagement and motivation (Kooli, 2023).

ChatGPT was proposed as an AI-based chatbot in November 2022 (OpenAI, 2023). The utilization of ChatGPT in education has recently gained substantial attention (Rathore, 2023). Being an AI chatbot, ChatGPT has the capability to transform interactions and learning processes for students and educators.

ChatGPT assists educators in creating lesson plans, summarizing key concepts, and generating instructional materials. For instance, educators can employ ChatGPT for creating course outlines and developing content including presentations and learning activities (Rahman & Watanobe, 2023). It can provide structured outlines for lectures, suggest discussion questions, and develop interactive activities tailored to different learning levels (Kasneci et al., 2023). Moreover, it helps educators quickly draft quizzes, worksheets, and study guides, saving time on content preparation.

ChatGPT can help educators streamline grading and feedback by generating comments on students' work, suggesting improvements, and identifying common errors. While AI cannot fully replace human evaluation, it can provide initial feedback