Chapter 12
The Synergistic Power of AIoT in Enhancing EFL Student CCT Skills in Higher Education

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ABSTRACT

The study monitored undergraduate students in English language education courses as they utilized artificial intelligence-enhanced learning resources. We created this course by integrating GenAI and IoT from various applications like Google (IoT), YouTube, and AI-ChatGPT into the learning plan, with a focus on modernity and interaction through AIoT. We aim to enhance students' communication and critical

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thinking skills by incorporating this technology into a dynamic learning environment that fosters 21st-century learning skills. The integration of AI-ChatGPT, YouTube, Mind mapping and Google (IoT) into the English education curriculum enhances students' critical thinking and communication skills, making learning more engaging and enjoyable. Insights like these highlights how the Internet of Things (IoT) can transform classroom methods and improve student achievement in the modern era.

INTRODUCTION

Generative Artificial intelligence (GenAI) is revolutionizing many parts of human existence in this age of heightened societal digitization. Artificial intelligence is reshaping numerous industries and its ability to automate processes, handle massive volumes of data, and offer predictive insights (Ullah, et al. 2024; Durach and Gutierrez 2024), traditional AI definitions emphasized the capability of AI to mimic human cognitive functions, including reasoning, decision-making, and goal setting. However, the integration of AIoT has enhanced these capabilities, resulting in smart applications that serve as excellent instructional tools.

AIoT technology, which integrates AI with the Internet of Things, can bolster many different approaches to education. This is especially true of project-based and problem-oriented learning models. According to Park and Kwon (2024), students can improve their problem-solving and collaborative skills, gain a deeper understanding of technology, and learn to adapt to AI systems efficiently with the help of these models. This integration is crucial for today's schools because it creates a dynamic and engaging classroom where students can learn and grow. Using digital apps and tools to encourage creative thinking, the "maker movement" exemplifies the "learning by doing" concept. Traditional education, on the other hand, tends to centre on theoretically grounded, hands-on courses. The focus of maker education is on getting students to work together on real-world projects, with an emphasis on social engagement. When studying English, this approach is especially useful since it encourages students to think creatively and realistically by giving them opportunities to convey their thoughts (Nguyen et al., 2024; Rajamohan et al. 2024).

According to Fernández et al., (2024) and Onesi et al. (2024), the Internet of Things (IoT) marks a worldwide movement in education that seeks to foster students' creative abilities to better equip them for the demands of the future. To improve national competitiveness, mold students' information literacy, and foster their creative and critical thinking abilities, educational reforms now incorporate courses on AI, IoT, and AIoT. The line with the technical developments of Industry 5.0, the focus on computational thinking highlights the significance of these abilities in educational and occupational settings.