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Students' Perceptions on the Use of Generative AI in Enhancing Teaching and Learning Computer Science Courses

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Abstract: This research study examines the perception of third-year computer science students in Kenya towards the use of Generative Artificial Intelligence tools in their studies. The researchers used descriptive research design to understand student attitudes, the perceived usefulness of Generative Artificial Intelligence, and the challenges they face. The study finds that students generally see Generative Artificial Intelligence tools as beneficial for learning, especially in areas like coding and research. However, they also identify concerns about over-reliance on Generative Artificial Intelligence, accuracy of information, and ethical considerations, such as plagiarism. The study concludes that Generative Artificial Intelligence can be valuable in computer science education, however, it should be used reliably and balanced with traditional teaching methods to ensure critical thinking and creativity.

Keywords: Generative AI, Active Learning, Computer Science Education, Student Perceptions, Barriers to Adoption, Educational Technology.

1. Introduction

Today's technology is rapidly developing, and with the advancement of technology, artificial intelligence is dominating the education system, particularly computer science. The study analyzed in the paper is entitled Students' Perceptions on the Use of Generative AI in Enhancing Teaching and Learning in Computer Science Courses, which explores the students' perception of the use of Generative Artificial Intelligence (GAI) in solving existing problems in higher education [1] [2]. Given the pressures of managing large groups of students, institutions derive value from GAI tools such as ChatGPT, DALL·E, and GitHub Copilot used to address some activities including assessment and feedback in real-time thus easing the instructor's burden [3] [4] [5].

First, GAI improves the flow of the lessons by engaging the students and giving them more opportunities to exercise their creativity and confidence at the set pace [3] [6]. Feedback provided by AI within the shortest time possible also assists students to self-assess their work and correct their errors, facilitating learning and skill enhancement in problem solvers. While students believe that GAI can help develop ideas, explanations, and learning resources, there are concerns about its overuse [7] [8]. By focusing on students' views, this work intends to evaluate the educational functionality of GAI and at the same time support the practical Pearson correlation of AI in Computer Science education [2] [9]. By providing empirical evidence on how GAI tools influence learning outcomes and focusing on the balance between AI-assisted learning and independent problem-solving, the study contributes valuable insights into optimizing AI integration while mitigating risks of overuse, thereby guiding future educational strategies in AI-driven learning environments.

