Exploring Student Perceptions and Interactions with ChatGPT in Learning Java Programming

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Abstract

The integration of Artificial Intelligence (AI) tools like ChatGPT is transforming programming education by offering immediate assistance, debugging support, and simplifying complex concepts. This study explores students' experiences and perceptions of using ChatGPT for Java programming assignments in the Integrative Programming and Technologies course. It also examines how students formulate and adjust prompts to optimize ChatGPT's responses and assesses its impact on their understanding of key programming concepts. A qualitative approach using semi-structured interviews with nine participants was adopted, with data analyzed through Interpretive Phenomenological Analysis (IPA). The findings show that ChatGPT significantly reduces task completion time, helping students complete assignments more quickly. Students frequently relied on ChatGPT for coding tasks such as debugging and database integration, improving productivity and minimizing time spent on troubleshooting. However, some challenges arose when ChatGPT provided advanced responses beyond the students' current knowledge. ChatGPT also supported students in understanding complex and advance concepts in Java Programming. The study highlights the importance of clear and specific prompts to optimize ChatGPT's effectiveness. While students appreciated the tool's efficiency, concerns about over-reliance and its potential to hinder independent problem-solving were noted. The study concludes that, while ChatGPT is valuable for enhancing learning efficiency, educators must establish structured guidelines to ensure a balance between AI use and the development of critical thinking skills. This research contributes to the responsible use of AI tools in education, recommending their integration within traditional teaching frameworks to enhance student learning.

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Keywords : *Artificial Intelligence(AI), ChatGPT, Java programming, programming education, qualitative research.*