Generative AI in Education: A Survey of Current Research and Practice

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Abstract: *This research paper presents the development of a Generative AI-Based Virtual Study Guide designed to revolutionize personalized learning by dynamically creating content tailored to individual student needs. Through the use of advanced AI technologies, including natural language processing (NLP) and deep learning, the system analyzes each student's unique learning goals, preferences, and performance metrics to generate customized study resources. These resources include concise summaries, adaptive quizzes, and interactive explanations that are continuously refined to align with the student's learning pace, subject preferences, and comprehension level. By offering targeted support in real time, the AI-driven study guide promotes deeper engagement and enhances knowledge retention, addressing the diverse needs of learners across various educational contexts. The project demonstrates the transformative potential of AI in education, not only as a tool for scalable personalization but also as a model for future innovations aimed at improving learning efficiency and outcomes.*

Keywords: Advanced learning, Generative AI, Artificial Intelligence, pedalogy, large language models(LLM)

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