

2nd International Education Conference

09 - 11 August 2024

Berlin, Germany

Integrating Adaptive Learning Technologies into E-Learning Platforms to Enhance Science Education

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Abstract

Integrating Adaptive Learning Technologies into E-Learning Platforms to Enhance Science Education: A Case Study of Africa Renewal University

This presentation will explore the integration of adaptive learning technologies into e-learning platforms to enhance science education, using Africa Renewal University as a case study. The study will aim to evaluate the effectiveness of adaptive learning in personalizing science education, improving student engagement, and boosting academic performance. The objectives will include:

- (1) assessing the impact of adaptive learning technologies on student performance in science subjects
- (2) examining changes in student engagement and motivation
- (3) understanding teacher and student perceptions of these technologies.

A mixed-methods approach will be employed, encompassing both quantitative and qualitative data collection. Quantitative data will be gathered through pre and post-intervention academic performance metrics, while qualitative insights will be derived from surveys, questionnaires, and semi-structured interviews with students, teachers, and administrators. The data will be analyzed using statistical methods for quantitative data and thematic analysis for qualitative responses. Major findings will indicate a significant improvement in student performance in science subjects after the implementation of adaptive learning technologies. Students will demonstrate higher levels of engagement and motivation, attributed to the personalized learning paths and interactive content provided by the adaptive systems. Teachers and students will report positive perceptions, noting increased ease of use and enhanced learning experiences.

The study will prove that adaptive learning technologies offer a promising avenue for improving science education in e-learning environments, particularly in resource-constrained settings like Africa Renewal University. Key recommendations will include the need for continued investment in adaptive learning technologies, professional development for educators to maximize the benefits of these tools, and ongoing research to refine and expand their application.

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This research will contribute to the field of e-learning and science education by providing empirical evidence and practical insights into the benefits and challenges of integrating adaptive learning technologies, offering a model that can be replicated in similar educational contexts.

Keywords: E-LEARNING