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Series 2025

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Preface

Pioneering Educational Perspectives: Series 2025 is a collection of thought-provoking insights and research contributions exploring contemporary educational trends and practices. This eBook presents a diverse range of perspectives on innovative teaching methodologies, digital learning strategies, and transformative approaches in education. Designed to serve as a resource for educators, researchers, and practitioners, it aims to inspire meaningful discussions and advancements in the field. Through carefully curated chapters, this publication offers fresh ideas and practical solutions to enhance learning experiences in an ever-evolving educational landscape.

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USING AI AND LEARNING ANALYTICS TO ENHANCE STUDENT ENGAGEMENT IN HYBRID LEARNING

Muhammad Nur Firdaus Nasir[1*], Fahmi Samsudin[2], Nor Fariza Baharuddin[3], Nadzri Mohd Sharif[4] & Meor Hasmadi Meor Hamzah[5]

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ABSTRACT
Hybrid learning, which combines face-to-face and online instruction, has become a prevalent educational model, yet it faces challenges in maintaining student engagement. The disconnect between online and in-person components often leads to decreased participation and lower academic performance. This study explores the integration of AI and learning analytics to enhance student engagement in hybrid learning environments. The design features dual learning modes, an interactive display, and AI-driven personalization to create a cohesive and interactive experience. By providing real-time engagement metrics, personalized learning paths, and dynamic feedback, the design addresses the shortcomings of traditional hybrid models. Targeted at educational institutions and technology companies, this innovative approach aims to improve academic outcomes, reduce dropout rates, and ensure equitable access to education. Its potential for commercial success is significant, given the growing demand for advanced educational technologies. The design's seamless integration of AI and learning analytics offers a promising solution to the challenges faced in hybrid learning, making it a valuable contribution to educational technology.

KEYWORDS: Hybrid learning, Student Engagement, AI Integration, Learning Analytics, Educational Technology.

PROBLEM AND OBJECTIVE
Hybrid learning, which combines face-to-face and online instruction, has become increasingly prevalent in educational settings. Despite its flexibility, hybrid learning faces significant challenges in maintaining student engagement. Students often experience a disconnect between the online and in-person components, leading to decreased participation and lower academic performance. The objective of this study is to explore how AI and learning analytics can be employed to enhance student engagement in hybrid learning environments. By leveraging these technologies, the aim is to create a more cohesive and interactive learning experience that bridges the gap between online and in-person modalities.

DESIGN DESCRIPTION

Purpose
The design focuses on creating a futuristic hybrid learning environment where AI and learning analytics are seamlessly integrated to enhance student engagement. The goal is to address the disconnect often experienced in hybrid learning settings by providing a cohesive, interactive, and personalized learning experience.

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Features

- **Dual Learning Modes:** The classroom is divided into two sections—one representing the physical, face-to-face learning environment, and the other depicting the online digital interface. This layout symbolizes the hybrid nature of the learning experience (Hwang, G.-J., & Chang, H.-F. , 2021).
- **Interactive Display:** At the center, a large interactive display connects both learning modes. This display is the core of the AI and analytics integration, showing real-time engagement metrics, personalized learning paths, and feedback to students and instructors Picciano, A. G. (2020).
- **AI-Driven Personalization:** Glowing pathways and dynamic charts illustrate the AI-driven features like adaptive learning paths and real-time feedback mechanisms that adjust to individual student needs. (Wang, Y., & Heffernan, N. T. , 2019) (West, D. M. , 2019).
- **Modern Aesthetic:** The environment is designed with sleek, minimalistic furniture and advanced technology, ensuring a harmonious blend of physical and digital elements (Shute, V. J., & Becker, B. J., 2018).

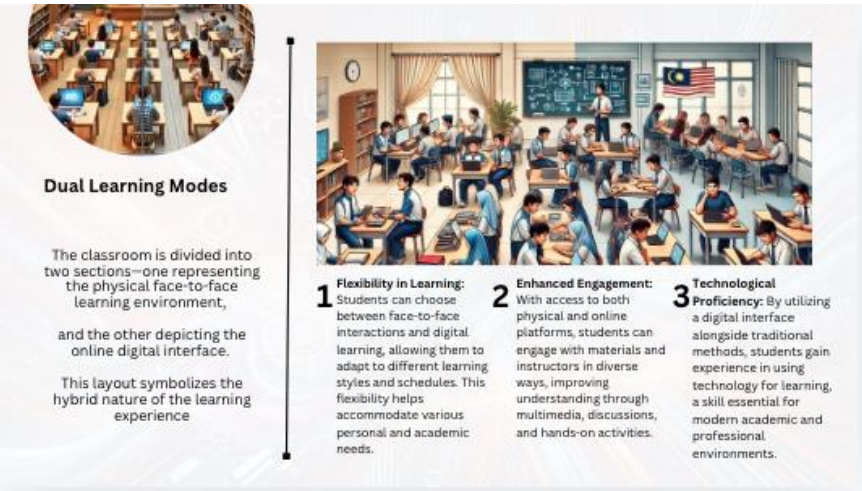
Functionality

The system's main functionality is to provide a comprehensive view of student engagement by leveraging AI and learning analytics. It dynamically adjusts to the unique needs of each student, offering personalized recommendations and real-time feedback, thereby improving the overall learning experience in a hybrid setting.

Target Audience

The design is intended for educational institutions ranging from K-12 schools to universities, as well as corporate training programs. It is also aimed at educational technology companies looking to innovate in the field of hybrid learning.

VISUALS

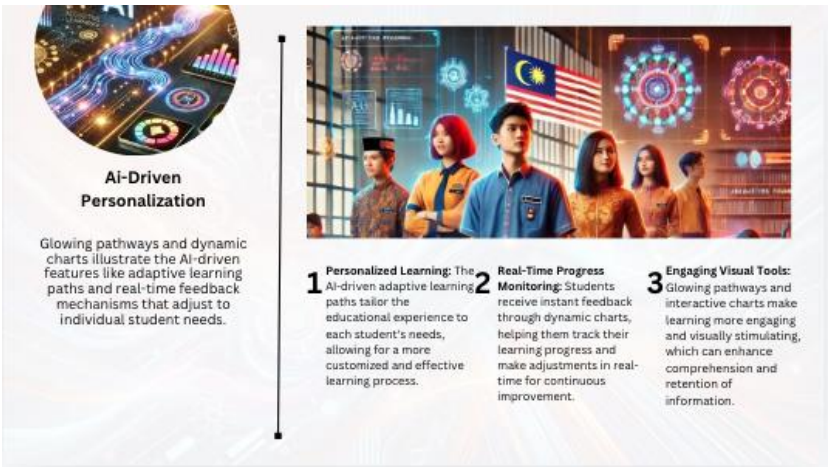


Dual Learning Modes

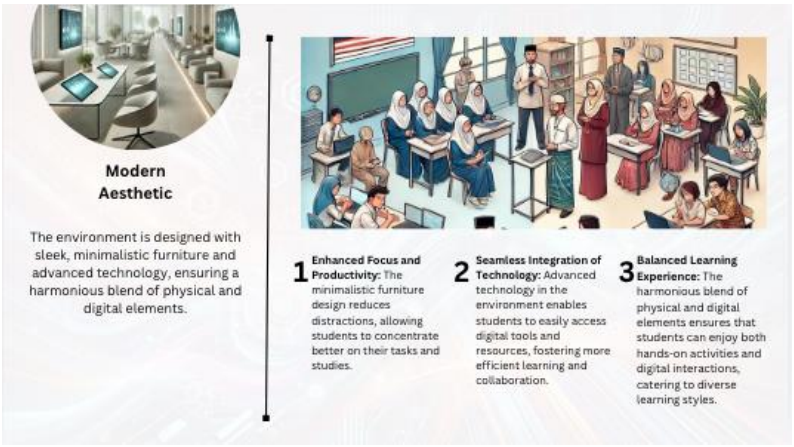
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Interactive Display



AI-Driven Personalization



Modern Aesthetic

NOVELTY AND UNIQUENESS

The unique selling point of this design is its ability to provide a seamless, adaptive, and responsive learning experience by integrating AI and learning analytics. Unlike traditional systems, this approach offers real-time insights and personalized education, which cater to the evolving needs of students in a hybrid environment.

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BENEFITS TO MANKIND

This solution can significantly enhance academic performance, reduce dropout rates, and ensure equitable access to educational resources. By fostering a more educated and skilled workforce, it contributes to tackling global challenges and promoting economic growth and sustainability.

COMMERCIAL POTENTIAL

The growing demand for innovative educational technologies makes this design highly marketable. It has the potential to attract partnerships with educational institutions and technology companies, enhancing its reach and commercial success.

CONCLUSION

This design offers a promising solution to the challenges of student engagement in hybrid learning environments. By integrating AI and learning analytics, it ensures that students receive a personalized, interactive, and effective learning experience, making it a valuable addition to the field of educational technology.

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