Integration of Artificial Intelligence and Learning Analytics into Academic Libraries for resource optimisation in South Africa

Section 1: Contribution Details

No.	Contribution	Detail
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Section 2: Abstract Text

Artificial intelligence (AI) and learning analytics can be used to optimise resources in academic libraries. Technological advancements in higher education have revolutionised teaching, learning, and research by introducing AI digital platforms and data-driven tools. AI encompasses a suite of technologies that enables the processing of complex datasets, revealing patterns, trends, and correlations that might be missed using traditional methods. AI systems optimise reasoning, problem solving, management decisions by identifying trends and predicting demand for specific resources; whilst learning analytics assess interaction with library resources to measure impact on student success. This study explores the integration of AI and learning analytics into institutional dashboards to enhance library services, optimise resource allocation, and align with institutional goals. The study further examines how data-driven innovations identify gaps in resource usage, enabling libraries to adapt to evolving user needs. Using a qualitative methodology, this research emphasises the role of AI and learning analytics in enhancing service delivery, resource allocation, and performance tracking. Exploratory techniques are applied to obtain new insights and correlate patterns analysis used to identify relationships between different metrics across datasets using various tools. This study reveals that dashboards are highlighted as tools for tracking usage patterns, informing budget allocation, and developing services that demonstrate value to stakeholders. Strategic planning benefits from actionable insights that align service delivery with institutional objectives. This study recommend that data-driven innovations can reveal emerging trends in academic behaviour, guiding the library's evolution over time. Also, can enhance services by meeting user needs through integrated dashboards highlight the library's contribution to teaching, learning, and research, solidifying its position as a core institutional partner. Practical implications for managing data and implementing AI-driven solutions are outlined, underscoring their potential to transform libraries into dynamic, value-driven components of higher education. Streamlining library operations for improved quality and efficiency is demonstrated, including enhanced decision-making, and planning for library management. Determining Return on Investment of library resources and staff capabilities to effectively report trend patterns is essential.