

Reengineering Library Services through Intelligent Information Systems: a Case Study on Zoology Departments in Arts and Science Colleges under Bharathiar University

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As the digital revolution reshapes academic ecosystems, university libraries are compelled to re-structure their services through the focus on technology and user-centric design. This study explores the integration of Intelligent Information Systems (IIS) to reengineer library services, with a targeted case study on Zoology departments in colleges under Bharathiar University, Coimbatore. The research addresses how tailored intelligent systems can enhance library access, usability, and discipline-specific resource discovery, based on the subject dependence on evolving taxonomies, ecological datasets, and visual learning materials. Employing a mixed-methods research design, the study drew from faculty interviews, student usage analytics, and library staff surveys across selected affiliated Arts and Science colleges. It identified key limitations in current systems, such as inconsistent metadata tagging, minimal adaptive search capabilities, and a lack of Zoology-focused digital repositories. Through an exploration of intelligent tools including machine learning-powered content curation, semantic search, and multilingual virtual assistants, the study documented improvements in research efficiency, academic satisfaction, and user engagement. Recommendations include specialized librarian training in life sciences metadata, digitization of local biodiversity archives, integration of AI-assisted reference services, and inclusion of Tamil-language support to reflect user diversity. The findings position IIS not merely as tools of modernization but as enablers of more equitable, accessible, and responsive academic environments for life science disciplines. By focusing on the Bharathiar University context, this case study offers localized yet scalable strategies for transforming traditional library models, underscoring how intelligent systems can empower a new generation of Zoology scholars in India's semi-urban and rural higher education spaces.

Keywords: *Digital transformation; Visual learning materials; Virtual assistants*