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Libraries, Information Centers, and Artificial Intelligence in the Digital Era: Strategic Pathways for Advancing Distance Education in Complex Public-sector Environments — a Case Study of the Democratic Republic of the Congo

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Abstract

The persistent inadequacy of infrastructure for open and distance learning (ODL) in the Democratic Republic of the Congo (DRC) continues to constrain equitable access to higher education and knowledge resources. Libraries and information centers—often perceived as auxiliary services—remain underutilized as strategic components of digital learning ecosystems, while advances in artificial intelligence (AI) present new opportunities for knowledge mediation, learning personalization, and institutional connectivity.

This doctoral research explores how libraries, information centers, and AI can strengthen ODL in the DRC, a context marked by resource constraints. Using a mixed-methods design—documentary analysis, interviews, surveys, and comparative case studies—the study examines both opportunities and barriers. The sample includes educators, librarians, and policymakers across five institutions, while comparative cases from Africa, Europe, North America, and Asia highlight transferable practices.

Findings reveal AI's potential to enhance cataloguing, semantic retrieval, multilingual access, transparency, and learner support, but also underscore infrastructural disparities, uneven resource distribution, skills gaps, and governance challenges. In response, the study proposes the Université Panafricaine Connectée (UNIPAC) model as a strategic framework for integrating digital libraries, AI governance, and institutional partnerships. Distinctive elements of UNIPAC include actionable mechanisms for resource-sharing, adaptive learning support, and policy alignment.

The expected impact is improved educational access and strengthened institutional credibility, offering a policy-relevant pathway for advancing digital education in emerging contexts. Beyond the DRC, the study contributes to library and information science, distance education, and digital governance, while providing insights for policymakers and institutions in Africa and comparable regions worldwide.

Keywords: Artificial Intelligence; Open and Distance Learning; Libraries and Information Centers; Digital Knowledge Services; Higher Education Policy; Panafrican-African Connected University (Unipac); Democratic Republic of the Congo (Drc).