Chapter 4
The Importance of Knowledge Management and AI in Collaborative and Adaptive Learning:
Impact on Education

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ABSTRACT

Knowledge Management (KM) is essential in today's business and educational environments, playing a crucial role in capturing and sharing knowledge to drive innovation and improve decision-making processes. In education, KM optimizes pedagogical practices, improves student outcomes, supports teacher development, and centralizes information. Artificial intelligence (AI) enhances KM by automating key tasks such as creating, sharing, and transferring knowledge. The combination of KM and AI enables more effective collaboration and precise adaptation of educational content. Together, they create dynamic, up-to-date content, identify learners'

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shortcomings, and propose appropriate pedagogical solutions. This study examines the impact of KM and AI on collaborative and adaptive learning and explores how educational institutions can better manage knowledge and deliver effective learning experiences.

INTRODUCTION

Information and communication technologies (ICT) and artificial intelligence (AI) have significantly changed learning processes. Technology and artificial intelligence have changed how people learn, giving them new opportunities. Learners can now access a wealth of information from a variety of sources, making learning more interactive and engaging. AI-powered tools provide personalized feedback and tailored support, enhancing the learning experience. Furthermore, AI-powered assessment tools help trainers evaluate performance and provide precise guidance. These advances have made learning more accessible, engaging, and effective, which has transformed the educational landscape.

Collaborative learning involves groups working together to solve problems or complete tasks. It fosters cooperation using tools like videoconferencing, forums, and platforms. This approach enables learners to work together, share knowledge and solve problems collectively. By fostering social interaction and collaboration, collaborative learning enables learners to develop essential skills such as communication, collaboration and critical thinking.

Contrastingly, Adaptive learning is defined as the use of advanced technologies to adjust educational content according to learners' individual interactions and performance, enabling in-depth personalisation of learning paths(Martin et al., 2020). Using artificial intelligence, this approach offers personalised learning experiences, tailored to the needs and performance of each learner. Intelligent systems analyse learner data, identify gaps and recommend targeted resources and activities to fill them. This approach enables learners to progress at their own pace, receive individualised support and optimise their learning.

These new forms of collaborative and adaptive learning are also transforming the role of trainers. They become facilitators and guides, supporting interactions and providing feedback. Trainers play a key role in creating a learning environment conducive to collaboration, interaction and learner autonomy. However, it is important to recognize that the trainer's pedagogical and professional knowledge remains essential and valuable. Combining the trainer's expertise with the opportunities offered by AI and ICT technologies makes it possible to design more enriching and effective learning environments.

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