Chapter 1
Revolutionizing Interdisciplinary Education and Research:
What Does Artificial Intelligence Do for Humanity?

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ABSTRACT

The study explores the transformative impact of artificial intelligence (AI) on interdisciplinary education and research, highlighting its potential to revolutionize learning and knowledge integration across diverse fields. AI is reshaping educational landscapes by enhancing personalized learning experiences, enabling adaptive teaching methods, and providing powerful tools for researchers. The study examines how AI-driven technologies, such as intelligent tutoring systems, data analytics, and collaborative platforms, break down traditional barriers between disciplines, fostering cross-disciplinary solutions to complex global challenges. Morestill, by leveraging AI, educational institutions and research organizations can create more efficient, dynamic, and inclusive environments that encourage innovation and accelerate progress. Therefore, the study emphasizes the crucial role of AI in shaping the future of education and research, where interdisciplinary collaboration and technological advancements work together to address societal needs and improve outcomes across various sectors.

DOI: 10.4018/979-8-3373-9225-7.ch001

1. INTRODUCTION

Artificial intelligence can, in fact, revolutionize interdisciplinary education and research. As technology continues to become increasingly pervasive in all aspects of human life, learning institutions have also come to realize the necessity of fusing technological artifacts and the powers of technological realms into the fabric of scholastic discourse (Rusydiana, 2024). The traditional canons of pedagogy and curricular developments in universities and colleges need to be reconstructed in order to forge powerful cross-disciplinary platforms for social issues and problem-solving. Responding to those technological demands, this paper importantly starts its exploration of innovative educational and research methodologies by considering the power of AI (O'Brien & Davenport, 2024). The root rationale for this choice is that AI technology represents the current evolution from earlier instruments of human cognition.

Thus, it is the power of the AI universe and its technological artifacts that educational institutions must adapt themselves to in order to head off the criticism that they are divorced from the scholarly requirements of society. The body of the chapter is subdivided into several sections that would illuminate the ways AI technology can impact interdisciplinary education and research (Mohammed & Hossain, 2024). These include the intersection of AI technologies with disciplines, transformative learning and critical thinking, fostering creativity and innovation, an analysis of AI's capabilities and limitations vis-à-vis interdisciplinary education, and recommendations. In each section, our point of departure will be broader contemporary interests, such as critical analytic intelligence, creative adaptation, cross-disciplinary project-based learning, and the innovative capacities that have been redefined in diverse sectors, to illustrate the practical dimensions of philosophical concerns and the concrete relevance of this discussion (Kurti et al., 2024).

A revolution is taking place in the world of work, driven by phenomena such as automation, robotization, artificial intelligence, virtualization, big data, augmented reality, and the Internet of Things. This revolution, often referred to as the Fourth Industrial Revolution, is characterized by the increasing use of machines and systems to replace a multitude of tasks currently being performed by humans. Nonetheless, there is still no consensus on what the future of work will look like. It is expected, however, that the labor skills required by industries in the future will involve the ethical regulation and programming of robots and the establishment of a synergy between human beings and machines (Bull & Kharrufa, 2024). In the field of education, the creation of useful, imaginative, and conscientious human beings who could coexist peacefully and responsibly with other conscious entities on a habitable planet is widely accepted as a priority. Throughout history, educational principles and approaches have always been systemic and here-and-now method-