

Chapter 15

Integrating Artificial Intelligence (AI) Into the Curriculum: Empowering the Next Generation Through Proactive AI Education

Rohan James Jowallah

University of Central Florida, USA

ABSTRACT

“Bridging the Gap: Integrating Artificial Intelligence into the Curriculum,” addresses the urgent need to infuse AI education into school curriculums amidst AI’s growing influence in various sectors. It advocates for a shift from reactive to proactive educational strategies, emphasizing the role of education systems in mitigating the expanding skills gap and nurturing a generation adept in AI, machine learning, and data analytics. The chapter proposes a comprehensive AI curriculum integration framework, focusing on developing key AI competencies and ethical considerations, alongside strategies for effective implementation.

1. BRIDGING THE GAP: INTEGRATING ARTIFICIAL INTELLIGENCE (AI) INTO CURRICULUM

A few years ago, it would have seemed like science fiction if someone told you that you could ask any question from a data set and receive responses that, in most cases, were accurate. Currently, this form of technology is here, and the need to change how we think about teaching and learning comes with it. The reality is that we are embarking on a promising journey by fostering an alliance between AI and education. However, this journey will require a critical approach to ensure the integration is done considering technology, pedagogy, and humanity. Central to this change will be the need to embrace the cultural and societal shifts (Konstantopoulos et. al, 2010). This shift is also noted by the United Educational, Scientific and Cultural Organisation (UNESCO), which has been evaluating the disruptive implications of AI. While UNESCO’s perspective is that AI will not replace teachers, the organization believes that

DOI: 10.4018/979-8-3693-0074-9.ch015

AI literacy for teachers will be necessary. Hence, the need for an AI competency framework will define teachers' knowledge, skills, and attitudes to deploy AI in education (UNESCO, 2023). Globally, governments envision the arrival of generative AI as an opportunity with possible risks that must be addressed (Lin & Chen, 2023).

AI has forced many industries to rethink their hiring practices. According to Holmes et al. (2019), by 2025, twenty-five percent of the world's workforce will be replaced by automation. Within this transformation, it must be acknowledged that the role of the educator will also need to change. This change will not only create possible challenges but also highlight potential opportunities for educational stakeholders. Hence, it is urgent that educators proactively address the integration of AI into the curriculum. Curriculum designers understand the curriculum is not static, hence the need for continuous evaluation and additions (Marsh and Larson, 2006). Therefore, when a decision on integrating AI into the curriculum is made, there should be a formal decision-making process intended for AI to be 'fused' into the curriculum. Such a decision must also involve all stakeholders (Kärkkäinen, 2012).

The arrival of Large Language Models (LLMs), which are artificial intelligence (AI) driven, has created a seismic shift in how we interact with the world (Mishra, 2023). Its pervasiveness across sectors is not just reshaping industries but also calling for reconsidering our educational paradigms, which will impact our curriculum design. In considering the shift, it will be essential to ensure that the integration of AI into the curriculum is within dominant frameworks that have been the foundation of education systems. To achieve this, a collaborative approach must consider the curriculum for transformation, teachers, and professionals committed to the changes ahead Scleiss et.al (2023). Such an approach should also be sustainable and scalable and offer continuous improvement space (Peters, 2019).

The chapter will explore the influence of AI in education. The need for a broad-scale adoption of AI will be highlighted to show the importance of AI for educational transformation. In totality, this transformation should benefit society. The chapter then examines the education system and the need for more proactive approaches to addressing innovation. The chapter will position that our education systems need to be at the forefront of AI literacy. Hence, a proactive approach will decrease the growing skills gap due to the rapid pace of technological advancement in education (Jowallah, 2023).

A blueprint for integrating AI into the curriculum will be highlighted and will suggest strategies for encompassing teacher training, infrastructure development, and fostering a collaborative learning environment. A proposed model will underscore the importance of professional development sessions for educators to equip them with the knowledge and pedagogical skills required to teach AI effectively (Ray, 2023). The chapter concludes with a detailed analysis of the potential impact of the proposed AI integration into the curriculum. The author underscores the curriculum's role in fostering critical thinking, ethical awareness, and lifelong learning. The author will also highlight how this AI curriculum integration can drive innovation, boost economic growth, and shape the ethical use of AI.

2. THE AUTOMATION SHIFT AND THE CHANGING WORKFORCE

Research by Price Waterhouse Coopers (2023) suggested that local economies will see an improved Gross Domestic Product (G.D.P) by 26%. The group warns organizations that they must have the skills needed for this productivity transformation based on the emergence of AI. The group suggests that China will lead this AI revolution, followed by the USA. Furthermore, Price Waterhouse Coopers suggests that while these countries and others may lead the way, it is essential that a global effort is made to educate

12 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/integrating-artificial-intelligence-ai-into-the-curriculum/334787

Related Content

A Longitudinal Analysis of Labour Market Data with SOM

Patrick Rousset and Jean-Francois Giret (2009). *Encyclopedia of Artificial Intelligence* (pp. 1029-1035).

www.irma-international.org/chapter/longitudinal-analysis-labour-market-data/10369

Algorithm for Decision Procedure in Temporal Logic Treating Uncertainty, Plausibility, Knowledge and Interacting Agents

V. Rybakov (2010). *International Journal of Intelligent Information Technologies* (pp. 31-45).

www.irma-international.org/article/algorithm-decision-procedure-temporal-logic/38990

Complexity: Quantity or Quality

Russell K. Standish (2014). *International Journal of Signs and Semiotic Systems* (pp. 27-45).

www.irma-international.org/article/complexity/104641

Transformative Impacts of AI in Emerging Technologies in Business

(2025). *Transformative Impact of Artificial Intelligence on Management Information Systems* (pp. 131-164).

www.irma-international.org/chapter/transformative-impacts-of-ai-in-emerging-technologies-in-business/382989

A Comprehensive Study on Bias in Artificial Intelligence Systems: Biased or Unbiased AI, That's the Question!

Elif Kartal (2022). *International Journal of Intelligent Information Technologies* (pp. 1-23).

www.irma-international.org/article/a-comprehensive-study-on-bias-in-artificial-intelligence-systems/309582