

ARTIFICIAL INTELLIGENCE: A MULTIDISCIPLINARY APPROACH TOWARDS TEACHING AND LEARNING



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CHAPTER 7

AI Tools for Teaching-Learning Chemistry

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Abstract: Artificial Intelligence (AI) is quickly becoming ubiquitous, with applications in all spheres of life. The education sector is also not untouched, in fact students are now relying on AI tools for studying, doing homework, making assignments and reports, and preparing for exams. Teachers are also using AI tools to enhance classwork and assessments. The use of AI in chemistry education is rapidly growing and many AI tools are proving to be quite useful in this regard. However, chemistry being a vast subject with lots of concepts, laws, formulae, reactions, and applications, requires deep understanding and comprehension, which is a challenge for these tools as they are not always accurate and consistent in providing answers. The present chapter gives a brief account of the uses of AI in chemistry, with teaching-learning chemistry, in particular. It explores the advantages and disadvantages of using AI in chemistry education and how AI can be incorporated in classrooms.

Keywords: Artificial Intelligence, Chatbots, Chemistry education, ChatGPT, Generative AI.

INTRODUCTION

Artificial intelligence is defined as machine-based intelligence. When a computer exhibits cognitive behavior related to humans, such learning or problem-solving is referred to by this term [1]. That is, a machine that replicates human intelligence could be considered artificial intelligence [2]. It plays a crucial role in the technology sector, enabling cost-effective data collection and analysis within a secure environment [3].

With diverse applications ranging from natural language processing to search algorithms, reasoning, strategy formulation, machine learning, and deep learning,

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