

# Chapter 5

## A Bibliometric Analysis of Artificial Intelligence: Impact on Student Motivation in Education

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### ABSTRACT

*Artificial intelligence (AI) enhances students' learning motivation through personalized learning systems and intelligent tutoring in education. It provides students with immediate feedback and support to help them overcome their learning difficulties. In addition, the interactive learning environment created by AI further stimulates students' interest and engagement in learning. The impact of AI on student motivation to learn is crucial for improving the teaching system. In this paper, the PRISMA statement template is used for bibliometric analysis, and the Scopus database is used to analyze the publications from 2014 to 2023. 216 papers are retrieved to obtain insights on artificial intelligence and student motivation. The selection criteria are specific inclusion and exclusion criteria that analyze the distribution of publications from 2014 to 2023, the most important countries, research keywords and subject areas, and the most relevant authors and journals. These results offer*

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*insightful information about the field's current research interests.*

## **1. INTRODUCTION**

Artificial intelligence (AI) technology is rapidly becoming integrated into the education sector, profoundly affecting the way teaching is done and the students' learning experience (Zhai et.al, 2021). With the popularity of AI applications such as intelligent learning systems, personalized learning platforms and educational robots, the learning process for students has become more flexible and interactive (Limna et al., 2022) These technologies can not only provide customized learning resources according to the individual needs of students, but also stimulate students' learning motivation and improve learning results through immediate feedback and adaptive assessment.

With the growing emphasis on integrating customized learning and AI technologies in education, there is an urgent need to examine the current status of research and track growing trends across the almost ten-year study period (Ivanova et al.,2024). Student motivation is a key factor affecting academic success, and AI technology shows significant potential in enhancing student motivation (Dunn & Kennedy, 2019). Through AI-driven adaptive learning systems, students are able to learn at their own pace and enjoy a more personalized and engaged learning experience, thereby maintaining long-term interest in learning. At the same time, AI tools can also make learning content more lively and interesting through innovative means such as augmented reality (AR), gamified learning and virtual reality (VR), and further stimulate the intrinsic motivation of students (Lu et al., 2021).

In addition, AI can enhance students' learning motivation through gamification and interactive technologies. The research of Hellín et al. (2023)has shown that gamified learning elements, such as rewards, challenges, and competition, significantly increase student engagement and motivation. AI can automate and personalize these functions, further improving their effectiveness.However, while AI shows great potential for boosting student motivation, the discussion about its impact is still ongoing.

## **2. LITERATURE REVIEW**

In recent years, the application of artificial intelligence (AI) in the field of education has gradually attracted extensive attention from the academic community (Chen et al., 2022). AI technology has many influence mechanisms when it affects students' learning motivation. Rane et al. (2023) point out that AI technology can personalize

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