

Chapter 12

Chatbots in Classrooms: Tailoring Education and Boosting Engagement

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ABSTRACT

In the digital age, businesses must enhance customer experiences, with artificial intelligence (AI) chatbots proving pivotal in this endeavor. These chatbots, powered by AI, deliver personalized customer interactions, reshaping customer engagement. Operating through websites and mobile apps, they address user queries in real-time conversations. This chapter examines the potential of chatbots in education, elucidating benefits for students and educators. Categorization and functions of educational chatbots are explored, alongside insights into their design and development, leveraging machine learning and language processing. The advantages of chatbots for students are underscored. Ethical considerations are essential when deploying chatbots, ensuring security. Overcoming barriers in education, the chapter proposes strategies to optimize chatbot use, fostering effective implementation.

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INTRODUCTION

Introduction to Chatbots in Education

In recent years, technology has become the driving force behind rapid evolution in various landscapes (Bataineh et al., 2022; Khalil et al., 2023; Qablan et al., 2023). In the field of technology, chatbots are computer programs crafted to emulate conversation with human users, utilizing natural language on platforms such as applications, websites, and mobile apps. These digital assistants, a form of artificial intelligence (AI), facilitate interactions between individuals and service providers. According to research by Dashly (2023), the market for chatbots is projected to expand to \$10.5 billion by 2026. The education sector has seen a significant increase in the use of advanced AI tools, particularly in response to the pandemic. These technologies accelerate the dissemination of information and improve aspects of the educational process, such as personalizing tuition and feedback delivery (Baskara, 2023; Ibrahim & Alhabbash, 2022).

The pervasive influence of technology in education has led to students having effortless access to information via smartphones and tablets (Fateel, 2019). Incorporating chatbots into various platforms and learning management systems enhances the educational experience. Through language processing and machine learning, these tools provide personalized, immediate support to students (Kooli, 2023). Chatbots promote engagement by offering instant messaging, virtual assistance, and the distribution of study materials. Chatbots are effective in delivering information, assisting students with academic tasks, and facilitating institutional activities (Kooli, 2023). Their rapid response capabilities lead to increased user satisfaction and the prompt resolution of inquiries. Such immediate support renders chatbots indispensable for both students and educators. Educational institutions find chatbots to be cost-effective, as they can manage numerous inquiries simultaneously with minimal human involvement. This efficiency enables institutions to allocate resources more effectively (Karyotaki et al., 2022).

Furthermore, the automation of repetitive tasks and queries significantly boosts the efficiency of educational institutions. By handling routine inquiries, chatbots free up administrative teams to concentrate on more pressing matters, which allows them to devote their energies to areas that require human insight and expertise (Karyotaki et al., 2022). This shift in focus is instrumental in enhancing the overall functionality of educational institutions. Simultaneously, the integration of chatbots empowers educators to hone their teaching methodologies and focuses on innovative and student-centered approaches. In this rapidly changing nexus of technology and education, chatbots have become indispensable, not only streamlining communication and fostering student engagement but also effectively optimizing resource allocation. Their role in modern education is increasingly becoming that of a critical facilitator, reshaping how educational content is delivered and experienced.

MAIN FOCUS OF THE CHAPTER

Benefits of Chatbots in Education: Unleashing the Power of AI Chatbots in Education

Artificial intelligence has been a catalyst for significant changes across numerous sectors, including the field of education. AI-driven chatbots have become vital in transforming educational approaches. These

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