


Chapter 11

Gamification in Education in the Age of Artificial Intelligence

Yavuz Samur

 <https://orcid.org/0000-0003-4269-7099>

Bahçeşehir University, Turkey

Zeynep Cömert

Bahçeşehir University, Turkey

ABSTRACT

In the field of education, the combination of gamification and artificial intelligence (AI) is transforming conventional teaching methods. The integration of AI in gamification adapts the learning journey to individual students' strengths, weaknesses, interests, and pace, moving towards a more effective educational ecosystem. However, ensuring equitable access to AI in education is crucial for bridging the digital divide, while addressing ethical considerations related to data privacy and algorithmic bias is essential for the future. In addition to all these opportunities and advantages, the integration of artificial intelligence into gamification has some limitations. Considering this situation, this section will seek an answer to how AI-supported gamification tools should be used to improve learner motivation and performance, taking into account ethical principles.

DOI: 10.4018/979-8-3693-4119-3.ch011

INTRODUCTION

It is acknowledged that discussions on the limits of human intelligence and the abilities of machines to think have formed the basis of artificial intelligence (AI). Over the course of more than half a century, research and development in AI have led to the automation of processes, reducing the need for humans in the production of work and services. The current definition of AI encompasses a technology that goes beyond the abilities of thinking or problem solving, including creativity and productivity. It is anticipated that this situation will result in significant alterations to numerous disciplines, including health, law, and education.

A review of the literature on the use of artificial intelligence in education reveals that the past three decades have witnessed a remarkable evolution in this field (Bozkurt et. al., 2021; Zawacki-Richter et. al., 2019). Upon examination of the details of these studies, it becomes evident that a considerable number of them propose the utilisation of artificial intelligence in a multitude of processes, including those pertaining to student achievement prediction (Hu, Dong & Peng, 2022; Zhuang & Gan, 2017), instructional material design (Southgate, 2019), and measurement and evaluation (Tyson & Sauers, 2021). Moreover, it is anticipated that artificial intelligence will present a significant opportunity to transform both face-to-face and online learning experiences, particularly through applications such as personalised learning and authentic assessment (Zhang & Aslan, 2021). Nevertheless, there is still a paucity of scientific evidence regarding the impact of the opportunities that artificial intelligence will provide to education (Goksel-Canbek & Mutlu, 2016). Furthermore, the existence of curriculum development studies on the teaching of artificial intelligence (Choi & Park, 2021; Özmutlu, 2023; Park & Shin, 2021) in the literature suggests that education is more prepared for the use of artificial intelligence than many other disciplines. The announcement that some of the tasks that teachers are obliged to fulfil in the United States have started to be fulfilled by robots provides concrete evidence for this situation (Edward & Cheok, 2018). Therefore, it can be said that there is a consensus that artificial intelligence in education has the potential to improve the quality of learning and teaching processes.

On the other hand, there has been a significant increase in the number of those who express the view that the emergence of artificial intelligence will result in the death of the role of teachers. However, given the profound impact of technological advances in the field of education, the emergence of artificial intelligence will not spell the end of the teachers (Keller, 1968). Rather, it will transform the role of the traditional teachers and create new avenues for them (Garito, 1991). Consequently, there is a pressing need for research to equip teachers with the requisite knowledge and skills to fulfil these evolving roles and responsibilities. Nevertheless, research indicates that educators lack a clear understanding of the most effective AI tools to

18 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/gamification-in-education-in-the-age-of-artificial-intelligence/353755

Related Content

Did Smart Specialization Approach Universities and Firms?: The Role of Technological Regimes and the Innovative Processes

Joana Costa, Catarina Costa and Aurora A. C. Teixeira (2021). *University-Industry Collaboration Strategies in the Digital Era* (pp. 130-154).

www.irma-international.org/chapter/did-smart-specialization-approach-universities-and-firms/271529

Promoting Internal Quality Assurance in the Universities of Pakistan: Experiences of Quality Enhancement Cell

Sohail Ahmad and Meher Rizvi (2025). *Academic Accreditation and Evaluation in Higher Education: Practices, Experiences, and Quality Assurance* (pp. 137-162).

www.irma-international.org/chapter/promoting-internal-quality-assurance-in-the-universities-of-pakistan/369350

Funding Trends in Higher Education that Have Significant Impact on Accountability

William R. Stripling (2025). *Accountability in Higher Education: Navigating Current Issues and Trends* (pp. 185-222).

www.irma-international.org/chapter/funding-trends-in-higher-education-that-have-significant-impact-on-accountability/373652

Online Teaching Narratives for Year One Humanistic Public Courses: A Case Study at a Chinese International University

Kai Liu, Jingqiu Zhan, Jie Yang and Rui Ning (2024). *Engaging Higher Education Teachers and Students With Transnational Leadership* (pp. 224-237).

www.irma-international.org/chapter/online-teaching-narratives-for-year-one-humanistic-public-courses/345642

Students Negotiation Awareness and Conflict Management Skills: A Conceptual Review

Hasan Hüseyin Selviand Ayen Hurma Serin (2025). *Cultural Awareness and Diversity Management in Contemporary Education* (pp. 351-388).

www.irma-international.org/chapter/students-negotiation-awareness-and-conflict-management-skills/365192