

Chapter 7


Leveraging AI–Managed Learning Analytics and Micro–Credentials for Enhanced Student Engagement

Semiral Öncü

 <https://orcid.org/0000-0001-8549-094X>

Balikesir University, Turkey

Merve Çolakoğlu

 <https://orcid.org/0000-0001-5102-0528>

Independent Researcher, Turkey

Harun Cigdem

 <https://orcid.org/0000-0001-5958-5216>

National Defense University, Turkey

ABSTRACT

This chapter explores how the integration of Artificial Intelligence (AI)-managed learning analytics and micro-credentials can enhance student engagement and retention in higher education. The authors analyze the growing role of AI in monitoring student learning behaviors, providing real-time feedback, and enabling personalized interventions. They discuss the potential of micro-credentials, particularly digital badges, to motivate learners by recognizing their accomplishments and encouraging skill development. While these technologies present transformative opportunities, challenges such as data privacy, lack of standardization, and accessibility issues

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are addressed. The chapter emphasizes the importance of collaboration between educators, technologists, and policymakers to implement these tools equitably and effectively, with a focus on fostering lifelong learning and student success.

INTRODUCTION

The integration of learning analytics managed by Artificial Intelligence (AI) and the utilization of micro-credentials, or digital badges, present exciting opportunities to revolutionize student engagement and retention in higher education. This chapter is an attempt to explore how these innovative approaches can transform the higher education landscape by enhancing students' learning experiences and fostering their success.

Overview of Learning Analytics and Micro-Credentials

This section begins by discussing the role of learning analytics and micro-credentials/digital badges in enhancing learner persistence, or retention, in higher education. Learning analytics, driven by AI, involves gathering and analyzing student data to understand their learning behaviors and improve teaching strategies. Digital badges, on the other hand, function as digital representations of earned knowledge, skills, and competencies, encouraging students by recognizing their accomplishments and documenting their educational journeys. For the purposes of this chapter, the terms 'digital badges' and 'micro-credentials' will be used interchangeably to refer to the same concept of skill representation.

Learning analytics has grown as a major research area, particularly within learning supported by technology (Durak & Cankaya, 2023). Brown (2012) describes the process as a systematic approach to gathering and analyzing data from digital platforms with the aim of enhancing learning environments and experiences. By focusing on learner data, learning analytics aims to design systems and make decisions grounded in empirical evidence (Cigdem & Öncü, 2023), ultimately using data insights to inform better instructional methods and educational structures, to enhance student learning experience (Keskin & Yurdugül, 2022).

Learning analytics is becoming more and more important for educational institutions due to the ability of data to transform learning experiences and outcomes. Technology continues to develop day by day, and using data will have a major role in institutions achieving the learning goals they have in mind for their students and gaining and sustaining a competitive advantage over other institutions. Institutions use learning analytics to document (evaluate) their educational strategies and interventions. By using learning analytics, educators can analyze data on student

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