Leveraging Machine Learning to Predict Academic Success: A Literature Review and Bibliometric Trend Analysis

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## Declaration of Competing Interest

The authors have no competing interests to declare.

## Funding

Imamo kakšen projekt iz katerega bi črpali?

## Acknowledgments

The authors have no acknowledgments to declare.

## Author contributions

All authors contributed to the study’s conception and design. Material preparation, data collection, and analysis were performed by Bor Bregant, and Andreja Istenič. The first draft of the manuscript was written by Bor Bregant and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

## Data availability statement

The authors declare that the data supporting the findings of this study are publicly available at

https://github.com/borbregant/Doktorat\_all/blob/main/raziskovalni\_seminar

## Abstract

This study examines the application of machine learning (ML) for predicting academic success through a literature review and bibliometric trend analysis. Using the WOS, SCOPUS, T&F databases and the PRISMA framework, 184 articles were analyzed to identify key research themes, publication trends, and methodological advancements. Results reveal a growing focus on ML’s potential to improve educational outcomes, with an emphasis on predictive analytics and performance modeling. Despite these advances, challenges such as inconsistent metadata, limited database coverage, and overuse of ML-related terminology persist.

### Keywords

data mining; machine learning; academic success; educational analysis; systematic literature review; bibliographical analysis