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

Bor Breganta b, Andreja Isteničc d \*

aFaculty of Mechanical Engineering, University of Ljubljana, Ljubljana, Slovenia

borcid id 0009-0000-9331-5391

cFaculty of Education, University of Primorska, Koper, Slovenia

cFaculty of Civil and Geodetic Engineering, University of Ljubljana, Ljubljana, Slovenia

dorcid id 0000-0003-0513-5054

\*corresponding author

Corresponding author:

Andreja Istenič

Faculty of Civil and Geodetic Engineering, University of Ljubljana, Ljubljana, Slovenia; Jamova cesta 2, 1000 Ljubljana

Faculty of Education, University of Primorska, Koper, Slovenia; Cankarjeva ul. 5, 6000 Koper

andreja.istenic@fgg.uni-lj.si

andreja.istenic@pef.upr.si

Personal phone: ...

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## 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

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## 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