

ABSTRACT

The utilization of Learning Management Systems (LMS) in distance learning generates a large amount of student activity data that has not yet been optimally leveraged to support adaptive learning. Students often do not receive feedback that aligns with their individual learning styles and intensity. Existing systems are still unable to automatically identify learning behavior and provide personalized support. This study uses LMS log data as input and produces a classification of self-regulated learning (SRL) levels as well as adaptive feedback as the output.

This topic is important as it contributes to the improvement of online learning quality, which is increasingly used in various educational settings. Currently, most LMS platforms only present general statistics without any data-driven interventions. This creates a gap between the need for personalized learning support and the actual assistance provided by the system.

The solution implemented involves developing a classification model using the Random Forest algorithm to predict students' SRL levels based on LMS activity features, such as study duration, content access, and forum activity. The system then generates weekly adaptive feedback according to each student's SRL label.

The model successfully maps students' SRL levels with a high degree of accuracy. The system also provides weekly feedback that is relevant and personalized, supporting the development of students' independent learning skills in a more structured and efficient manner.

Keywords: LMS, activity log, self-regulated learning, adaptive feedback, Random Forest.