

ABSTRACT

Online learning through Telkom University's CeLOE Learning Management System (LMS) is designed to follow the Semester Learning Plan (RPS), but in practice, many students do not follow the established sequence. Irregular weekly schedules, skipping of course material, and repetition of assignments result in the actual learning process deviating from the plan, reducing learning effectiveness and complicating the monitoring of learning outcomes. This issue is important to examine because the effectiveness of the LMS as a learning support tool heavily depends on the alignment between the plan and its implementation, especially in the context of increasingly dominant distance learning. This study offers a solution by analyzing LMS event logs using the PM² methodology and the Inductive Miner Infrequent (IMf) algorithm to build a process model, separate non-remedial and remedial students, and evaluate them through self-log conformance checking using fitness, precision, and generalization metrics at three thresholds. The results show that at the optimal threshold of 0.4, non-remedial students have precision (0.520) and generalization (0.838), indicating structured learning patterns, while remedial students have higher fitness (0.8737) with branching and repetitive processes. Based on these findings, this study recommends several improvements to the RPS, including: incorporating weeks 1–3 into week 4 as a review before quiz 1; requiring all group members to submit assignments to prevent branching; rearranging the order of weeks 14–15 by moving Quiz 2 to week 14 and designating week 15 as a quiet week; and encouraging lecturers to engage in cross-faculty discussions to develop a more efficient RPS. Thus, this study not only demonstrates that Inductive Miner Infrequent is effective in objectively analyzing students' learning patterns but also provides practical recommendations to enhance the effectiveness of the RPS and support a more structured learning process.

Keywords: *process mining, inductive miner infrequent, PM², conformance checking, LMS, Petri net*