

ABSTRACT

Monitoring student learning outcomes based on Outcome-Based Education (OBE) model at the Faculty of Industrial Engineering, Telkom University still faces obstacles in managing academic data. Currently, the monitoring process is carried out using spreadsheets with formulas that are linked between documents. This approach not only makes it difficult to manage and analyze data, but also increases the risk of delays in academic assessment and suboptimal decision making. In addition, the lack of additional information from student performance data makes it difficult to identify students who need further academic intervention, which can ultimately impact the effectiveness of curriculum evaluation and the quality of graduates. With the number of active students increasing each year, this challenge is becoming increasingly complex and requires a more systematic and integrated solution.

This research proposes the development of a web-based dashboard using the Laravel Lumen framework for the backend and React JavaScript for the user interface. The development approach uses the Iterative Incremental Model method, which allows gradual iteration in the development of key features. This model was chosen for its flexibility to adapt to user needs during the development process, to allow for continuous improvement based on feedback received, and to reduce the risk of error by developing features incrementally. This dashboard allows programs to systematically collect and manage learning outcome indicators, provide more meaningful data visualization to monitor the percentage of students meeting PLOs, and assist in the process of identifying students who have not met established performance standards. In addition, the system can automatically generate annual reports for programs, reducing the administrative burden of preparing academic reports and ensuring the accuracy of data used in curriculum evaluation.

The system evaluation was conducted through Unit Testing, User Acceptance Testing (UAT), and System Usability Scale (SUS) methods involving several stakeholders such as the program director and the vice dean of the academic faculty. The evaluation results show that this system is able to improve the

efficiency of monitoring learning outcomes by providing management of indicator master data, annual reports of study programs, and monitoring of student achievement percentages to find out students who need special attention, so it can help speed up the process of making decisions based on appropriate data needs. With this dashboard, OBE-based education management is expected to be more structured, adaptive, and able to support the improvement of academic quality in various study programs at the Faculty of Industrial Engineering.

Keywords - outcome-based education, dashboard, PLO attainment, indicator, annual report