

# Analisis Aktivitas Mahasiswa Pada Student-centered E-learning Environment (SCeLe) Berdasarkan Data Log Menggunakan Process Mining: Studi Kasus Kelas Aljabar Linier = Analysis of Student Activities on Student-Centered e-Learning Environment (SCeLE) Based on Log Data using Process Mining: A Linear Algebra Course Case Study

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## Abstrak

Keaktifan dan keterlibatan mahasiswa dalam <em>Learning Management System</em> menarik perhatian peneliti dan praktisi di bidang <em>e-Learning</em>. Ketertarikan ini disebabkan adanya manfaat dalam penggunaan <em>e-learning</em> secara paralel dengan pembelajaran konvensional. Keaktifan mahasiswa tercermin dari kontribusi dalam aktivitas pembelajaran. Latar belakang penelitian ini adalah untuk mengeksplorasi aktivitas mahasiswa di dalam <em>Student Centered e-Learning Environment</em> (SCeLE) terhadap capaian akademis mahasiswa; yaitu apakah ada perbedaan <em>user journey</em> mahasiswa yang capaian akademiknya tinggi dibandingkan mahasiswa yang capaian akademiknya rendah. Selain itu, penelitian ini juga ditujukan untuk mengidentifikasi masalah-masalah pembelajaran secara daring yang dihadapi oleh mahasiswa. <em>Data</em> aktivitas mahasiswa diambil dari <em>log</em> Moodle yang dapat ditarik dari SCeLE kelas Aljabar Linier. <em>Log</em> yang diambil kemudian disunting dan diproses menggunakan <em>spreadsheet</em> Microsoft Excel dan <em>process mining</em> Disco. Untuk menggali persepsi mahasiswa mengenai pengalaman belajar mahasiswa ketika menggunakan LMS SCeLE, maka dilakukan wawancara terhadap beberapa mahasiswa sebagai partisipan penelitian. Hasil yang didapatkan menunjukkan data tren aktivitas mahasiswa serta penurunan jumlah aktivitas paruh kedua periode pembelajaran. Selain itu, diketahui juga dari sudut pandang mahasiswa bahwa penurunan aktivitas setelah periode pertengahan semester dapat disebabkan oleh beberapa faktor. Berdasarkan penelitian ini, diajukan rekomendasi terhadap system dan kurikulum yang dapat memberikan gambaran karakteristik mahasiswa dalam beraktivitas di LMS.

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The activity and involvement of students using Learning Management System has attracted the attention of researchers and practitioners in the field of e-learning. This attraction stems from the benefits from the usage of e-learning if applied with conventional teaching methods. The student's activity is reflected in their contributions in learning activities. The background of this research is the exploration of student activities using Student-Centered e-Learning Environment (SCeLE) and comparing it to the academic achievements of the students: that is to find differences in the user journeys belonging to high achieving students and comparing it to low achieving students. This research also identifies problems that students might encounter. The activity data of students is taken from Moodle logs that is extracted from a Linear Algebra class in SCeLE. Extracted logs are filtered and processed using Microsoft Excel Spreadsheet and Disco Process Mining. To learn more on the student's perception while using LMS SCeLE, interviews of several students is conducted as research participants. The result shows the trends of student activities as well as the decrease of such activities in the second half of the semester. The information gathered also explains the decrease in

activity after the mid-terms period is explained by several factors. Based on this research, a recommendation for the system and curriculum is filed to give an image of the student's characteristic while conducting activities in the LMS.