ABSTRAK

ANALISIS DAMPAK PENGGUNAAN *ARTIFICIAL INTELLIGENCE* SEBAGAI *LEARNING ASSISTANT* TERHADAP BEBAN KERJA MENTAL DAN DISPOSISI BERPIKIR KRITIS MAHASISWA TEKNIK INDUSTRI UNSOED

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Penggunaan *Generative Artificial Intelligence* (AI) di lingkungan akademik menawarkan efisiensi dalam penyelesaian tugas, namun memicu risiko pelimpahan beban kognitif (*cognitive offloading*) yang dapat menurunkan kemampuan analisis mahasiswa. Penelitian ini bertujuan untuk mengukur pengaruh intensitas penggunaan AI terhadap beban kerja mental dan disposisi berpikir kritis mahasiswa, serta menganalisis perbedaan tingkat variabel tersebut berdasarkan kelompok angkatan. Pendekatan kuantitatif digunakan dengan melibatkan 174 responden mahasiswa aktif Program Studi Teknik Industri melalui kuesioner daring. Data diolah menggunakan analisis regresi linier sederhana, uji *Kruskal-Wallis*, dan uji *One-Way ANOVA*. Hasil penelitian menunjukkan bahwa intensitas penggunaan AI terbukti mampu menurunkan beban kerja mental secara signifikan, meskipun dengan kontribusi efisiensi yang terbatas sebesar 5,5%. Sebaliknya, penggunaan AI memicu penurunan tingkat disposisi berpikir kritis yang lebih besar dengan kontribusi pengaruh mencapai 16,7%. Hasil pengujian komparatif menunjukkan bahwa penurunan beban mental dirasakan secara merata oleh seluruh angkatan (Asymp. Sig. 0,697), sedangkan penurunan disposisi berpikir kritis bervariasi secara signifikan (Sig. 0,048). Titik terendah ditemukan pada mahasiswa yang sedang berada dalam fase penyusunan laporan teknis (Angkatan 2024). Temuan ini mengonfirmasi adanya fenomena pertukaran (*trade-off*) antara efisiensi penyelesaian tugas dan kualitas penalaran. Sebagai implikasi, penelitian ini mengusulkan rekomendasi kebijakan integrasi literasi AI pada kurikulum program studi serta Standar Operasional Prosedur (SOP) penggunaan AI bagi mahasiswa guna menjaga disposisi berpikir kritis di lingkungan akademik.

Kata Kunci: Standar Operasional Prosedur AI, *Cognitive Offloading*, Disposisi Berpikir Kritis, Beban Kerja Mental, *Artificial Intelligence*.

ABSTRACT

ANALYSIS OF THE IMPACT OF THE USE OF ARTIFICIAL INTELLIGENCE AS A LEARNING ASSISTANT ON THE MENTAL WORKLOAD AND CRITICAL THINKING DISPOSITION OF INDUSTRIAL ENGINEERING STUDENTS OF UNSOED

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The use of Generative Artificial Intelligence (AI) in the academic environment offers efficiency in task completion, yet it triggers the risk of cognitive offloading that can diminish students' analytical skills. This study aims to measure the effect of AI usage intensity on students' mental workload and critical thinking disposition, as well as to analyze the differences in the levels of these variables based on the student cohort. A quantitative approach was employed, involving 174 active students from the Industrial Engineering Study Program through an online questionnaire. The data were processed using simple linear regression analysis, the Kruskal-Wallis test, and the One-Way ANOVA test. The results indicated that the intensity of AI usage was proven to significantly reduce mental workload, albeit with a limited efficiency contribution of 5.5%. Conversely, the use of AI triggered a greater decline in the level of critical thinking disposition, with an influence contribution reaching 16.7%. Comparative testing results showed that the reduction in mental workload was experienced evenly across all cohorts (Asymp. Sig. 0.697), whereas the decline in critical thinking disposition varied significantly (Sig. 0.048). The lowest point was found among students who were in the phase of compiling technical reports (Class of 2024). These findings confirm the existence of a trade-off phenomenon between task completion efficiency and reasoning quality. As an implication, this study proposes policy recommendations for integrating AI literacy into the study program curriculum and establishing Standard Operating Procedures (SOP) for AI usage by students to preserve critical thinking disposition within the academic environment.

***Keywords**: AI Standard Operating Procedure, Cognitive Offloading, Critical Thinking Disposition, Mental Workload, Artificial Intelligence.*