

ABSTRAK

Sitorus, M. P. A, NIM 4223131038 (2026). Pengaruh Model Project based learning Terintegrasi STEAM terhadap Aktivitas dan Hasil Belajar Kimia Siswa pada Materi Laju Reaksi.

Penelitian ini bertujuan untuk menguji secara empiris pengaruh model Project based learning (PjBL) terintegrasi STEAM terhadap aktivitas dan hasil belajar siswa, serta menganalisis hubungan antara aktivitas belajar dan hasil belajar pada materi laju reaksi. Metode yang digunakan adalah kuasi eksperimen dengan desain *Pretest-posttest control group design* yang melibatkan kelas eksperimen dan kelas kontrol. Pengumpulan data dilakukan melalui lembar observasi aktivitas dan instrumen tes hasil belajar. Analisis data mencakup uji normalitas, homogenitas, serta uji hipotesis menggunakan uji t pihak kanan melalui *Independent Sample t-test* pada taraf signifikansi $\alpha = 0,05$, dan uji korelasi *Pearson Product Moment*. Hasil analisis menunjukkan bahwa model PjBL-STEAM berpengaruh signifikan terhadap aktivitas belajar siswa dimana diperoleh $t_{hitung} = 3,58 > t_{tabel} (1,99)$ dan hasil belajar siswa diperoleh $t_{hitung} = 5,38 > t_{tabel} = (1,99)$ pada taraf signifikansi $\alpha = 0,05$. Selain itu, diperoleh nilai korelasi antara aktivitas dan hasil belajar melalui korelasi *pearson product moment* dengan $r_{hitung} 0,799 > r_{tabel} 0,334$ yang mengindikasikan hubungan positif yang signifikan dengan kategori kuat antara aktivitas dan hasil belajar, dengan kontribusi sebesar 64%. Penelitian ini menegaskan bahwa penerapan PjBL terintegrasi STEAM efektif dalam meningkatkan aktivitas dan hasil belajar siswa, sekaligus memperkuat keterkaitan keduanya pada pembelajaran laju reaksi.

Kata Kunci : Project based learning , STEAM, aktivitas belajar, hasil belajar, laju reaksi

ABSTRACT

Sitorus, M. P. A. NIM 4223131038 (2026). The Effect of STEAM-Integrated Project based learning Model on Students' Chemistry Learning Activities and Outcomes in Reaction Rate Material.

This study aims to empirically test the effect of the STEAM-integrated Project based learning (PjBL) model on student learning activities and outcomes, and to analyze the relationship between learning activities and learning outcomes on the reaction rate material. The method used is a quasi-experimental design with a Pretest-posttest control group design involving the experimental class and the control class. Data collection was carried out through activity observation sheets and learning outcome test instruments. Data analysis includes normality tests, homogeneity tests, and hypothesis tests using the right-tailed t-test through the Independent Sample t-test at a significance level of $\alpha = 0.05$, and the Pearson Product Moment correlation test. The results of the analysis show that the PjBL-STEAM model has a significant effect on student learning activities where $t \text{ count} = 3.58 > t \text{ table} (1.99)$ and student learning outcomes obtained $t \text{ count} = 5.38 > t \text{ table} = (1.99)$ at a significance level of $\alpha = 0.05$. In addition, the correlation value between activity and learning outcomes was obtained through the Pearson product moment correlation with $r \text{ count} 0.799 > r \text{ table} 0.334$ which indicates a significant positive relationship with a strong category between activity and learning outcomes, with a contribution of 64%. This study confirms that the implementation of STEAM-integrated PjBL is effective in increasing student activity and learning outcomes, while strengthening the relationship between the two in learning reaction rates.

Keywords : Project based learning , STEAM, learning activities, learning outcomes, reaction rate