

ABSTRAK

Ismael Brian R. Simanjuntak. NIM 5203321001. Penerapan *Project Based Learning* (PjBL) Dalam Meningkatkan Hasil Belajar Siswa Kelas XI Teknik Pemesinan Pada Mata Pelajaran Teknik Pembubutan SMK Negeri 5 Medan Tahun Ajaran 2025/2026. Pendidikan Teknik Mesin. Fakultas Teknik. Universitas Negeri Medan.

Penelitian ini bertujuan untuk mengetahui efektivitas penerapan model pembelajaran Project Based Learning (PjBL) dalam meningkatkan hasil belajar siswa pada mata pelajaran Teknik Pembubutan kelas XI Teknik Pemesinan SMK Negeri 5 Medan Tahun Ajaran 2025/2026. Penelitian menggunakan pendekatan kuantitatif dengan metode Pre-Experimental Design melalui rancangan One Group Pretest–Posttest Design. Subjek penelitian adalah 32 siswa kelas XI TPM 1. Teknik pengumpulan data meliputi tes hasil belajar (pretest dan posttest), lembar observasi aktivitas belajar siswa, dan penilaian proyek berupa produk pembuatan palu kombinasi. Analisis data dilakukan secara deskriptif dan inferensial menggunakan uji normalitas serta uji Wilcoxon Signed Rank Test karena data tidak berdistribusi normal. Hasil penelitian menunjukkan bahwa penerapan model Project Based Learning mampu meningkatkan hasil belajar siswa. Nilai rata-rata pretest sebesar 64,50 dengan ketuntasan belajar klasikal 56,25% meningkat menjadi nilai rata-rata posttest sebesar 81,12 dengan ketuntasan belajar klasikal 87,50%. Aktivitas belajar siswa juga mengalami peningkatan dari 70,31% dengan kategori cukup aktif menjadi 87,59% dengan kategori sangat aktif. Selain itu, hasil penilaian proyek memperoleh nilai rata-rata 82,50 dengan tingkat ketuntasan mencapai 100%. Hasil uji Wilcoxon Signed Rank Test menunjukkan terdapat perbedaan yang signifikan antara hasil pretest dan posttest sehingga hipotesis penelitian diterima. Berdasarkan hasil penelitian dapat disimpulkan bahwa penerapan model pembelajaran Project Based Learning (PjBL) efektif dalam meningkatkan aktivitas belajar dan hasil belajar siswa pada mata pelajaran Teknik Pembubutan kelas XI Teknik Pemesinan SMK Negeri 5 Medan.

Kata Kunci : Model pembelajaran, Project Based Learning, Hasil belajar, Pembubutan

ABSTRACT

Ismael Brian R. Simanjuntak. NIM 5203321001. *The Implementation of Project Based Learning (PjBL) in Improving Learning Outcomes of Grade XI Machining Engineering Students in Turning Engineering Subject at SMK Negeri 5 Medan in the 2025/2026 Academic Year. Mechanical Engineering Education. Faculty of Engineering. Universitas Negeri Medan.*

This study aims to determine the effectiveness of implementing the Project-Based Learning (PjBL) model in improving student learning outcomes in the Turning Techniques subject for Grade XI Machining students at SMK Negeri 5 Medan during the 2025/2026 academic year. The study employed a quantitative approach using a pre-experimental design, specifically the One-Group Pretest-Posttest Design. The research subjects consisted of 32 students from class XI TPM 1. Data collection techniques included learning outcome tests (pretest and posttest), student learning activity observation sheets, and project assessments based on the production of a combination hammer. Data analysis was conducted using descriptive and inferential statistics, including normality testing and the Wilcoxon Signed-Rank Test, as the data were not normally distributed. The results indicate that the implementation of the Project-Based Learning model successfully improved student learning outcomes. The average pretest score was 64.50 with a classical mastery rate of 56.25%, which increased to an average posttest score of 81.12 with a classical mastery rate of 87.50%. Student learning activity also improved, rising from 70.31% (categorized as "moderately active") to 87.59% (categorized as "highly active"). Furthermore, the project assessment yielded an average score of 82.50, with a mastery rate reaching 100%. The Wilcoxon Signed-Rank Test results showed a significant difference between the pretest and posttest scores, thereby confirming the research hypothesis. In conclusion, the implementation of the Project-Based Learning (PjBL) model is effective in enhancing both student learning activity and learning outcomes in the Turning Techniques subject for Grade XI Machining students at SMK Negeri 5 Medan.

Keywords: *Learning Model, Project Based Learning, Learning Outcomes, Turning*