

ABSTRAK

IMPLEMENTASI LEMBAR KERJA PESERTA DIDIK (LKPD) BERBASIS PROYEK PADA MATERI ALAT OPTIK UNTUK MENINGKATKAN KEMAMPUAN *PROBLEM SOLVING* PESERTA DIDIK

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Tujuan dari penelitian ini adalah mendeskripsikan peningkatan kemampuan *problem solving* melalui implementasi Lembar Kerja Peserta Didik (LKPD) berbasis proyek pada materi alat optik. Adapun sampel dalam penelitian ini adalah peserta didik kelas XI IPA 1 sebagai kelas eksperimen dan peserta didik kelas XI IPA 2 sebagai kelas kontrol di SMA *Life Skills* Kesuma Bangsa. Metode penelitian yang digunakan adalah *quasi-experiment design* dengan desain penelitian *nonequivalent control group design*. Terdapat dua variabel penelitian, yaitu variabel bebas (LKPD berbasis proyek pada materi alat optik) dan variabel terikat (kemampuan *problem solving* peserta didik). Analisis data kemudian diuji N_{gain} dan uji *Independent Sample T-Test*. Hasil uji N_{gain} menunjukkan peningkatan kemampuan *problem solving* pada kelompok eksperimen tercatat sebesar 0,71 tergolong tinggi, sedangkan kelompok kontrol menunjukkan nilai 0,5 tergolong sedang. Berdasarkan hasil uji *Independent Sample T-Test* menghasilkan nilai *sig. 2-tailed* nilai 0,000 menunjukkan adanya perbedaan yang signifikan pada kemampuan *problem solving* peserta didik di kelas eksperimen dibandingkan dengan peserta didik di kelas kontrol. Temuan ini secara jelas menunjukkan bahwa penerapan LKPD berbasis proyek mengenai materi alat optik telah memberikan dampak positif dan dapat meningkatkan kemampuan *problem solving* peserta didik secara signifikan.

Kata kunci: **Alat Optik, Kemampuan *Problem Solving*, LKPD, *Project Based Learning***

ABSTRACT

THE IMPLEMENTATION OF PROJECT-BASED STUDENT WORKSHEETS IN THE TOPIC OF OPTICAL INSTRUMENTS TO IMPROVE STUDENTS' PROBLEM SOLVING ABILITY

By

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The purpose of this study is to describe the improvement of problem-solving ability through the implementation of Project-Based Student Worksheets (LKPD) in the topic of optical instruments. The samples in this study were students from class XI IPA 1 as the experimental group and students from class XI IPA 2 as the control group at SMA Life Skills Kesuma Bangsa. The research method used was a quasi-experiment design with a nonequivalent control group design. There are two research variables, namely the independent variable (Project-Based student worksheets in optical instruments material) and the dependent variable (students' problem-solving abilities). The data were then analyzed using the N_{Gain} test and Independent Sample T-Test. The N_{Gain} test results show that the improvement in problem-solving abilities in the experimental group was recorded at 0.71, categorized as high, while the control group showed a score of 0.5, categorized as moderate. Based on the Independent Sample T-Test results, the significance value of 0.000 indicates a significant difference in students' problem-solving abilities in the experimental group compared to the control group. These findings clearly indicate that the implementation of Project-Based LKPD in the topic of optical instruments has had a positive impact and significantly improved students' problem-solving abilities.

Keywords: LKPD, Optical Instruments, Problem-Solving Ability, Project-Based Learning