

## ABSTRAK

**Hartati Kartika Br Sihotang NIM 4203121057 (2024), Pengembangan Lembar Kerja Peserta Didik (LKPD) Berbasis *Problem Based Learning* (PBL) Materi Usaha dan Energi Pada Kelas X di SMA Negeri 7 Medan.**

Penelitian pengembangan ini bertujuan untuk menghasilkan LKPD berbasis PBL pada materi usaha dan energi yang layak digunakan dalam pembelajaran fisika. Jenis penelitian ini merupakan *Research and Development* (R&D) menggunakan model 4D Thiagarajan yang dibatasi sampai dengan pengembangan (Develop). Subjek pada penelitian ini adalah ahli materi, ahli media, guru bidang studi fisika dan peserta didik kelas X-5 SMA Negeri 7 Medan berjumlah 32 orang. Instrumen yang digunakan dalam penelitian ini terdiri dari angket uji kelayakan ahli materi dan ahli media, lembar observasi, instrument soal pretest dan posttest serta angket respon guru bidang studi dan peserta didik terhadap LKPD berbasis PBL materi usaha dan energi. Hasil penelitian menunjukkan bahwa LKPD berbasis PBL materi usaha dan energi yang dikembangkan termasuk dalam kategori sangat layak digunakan dalam proses pembelajaran fisika berdasarkan hasil uji validasi ahli materi (97,05%) dan ahli media (90,27%). Respon guru bidang studi terhadap LKPD yang dikembangkan (98,83%) dan respon peserta didik (92,75%). Berdasarkan perhitungan effect size, LKPD berbasis PBL materi usaha dan energi berada dalam kategori tinggi dengan skor 3,27 dan rata-rata posttest sebesar 82,77%. Dengan demikian dapat disimpulkan bahwa LKPD berbasis PBL materi usaha dan energi layak dan efektif digunakan dalam pembelajaran.

**Kata kunci :** Pengembangan, LKPD, PBL, Usaha dan energi

## ABSTRACT

**Hartati Kartika Br Sihotang NIM 4203121057 (2024), Development of Student Worksheets (LKPD) Based on Problem Based Learning (PBL) on Work and Energy Materials in Class X at SMA Negeri 7 Medan.**

This development research aims to produce PBL-based LKPD on work and energy that are suitable for use in physics learning. This type of research is Research and Development (R&D) using Thiagarajan's 4D model which is limited to development. The subjects in this study are material experts, media experts, teachers in the field of physics and students in class X-5 of SMA Negeri 7 Medan, totaling 32 people. The instruments used in this study consist of a feasibility test questionnaire for material experts and media experts, observation sheets, pretest and posttest question instruments and a response questionnaire for teachers and students in the field of study and students to the PBL-based LKPD for business and energy materials. The results of the study show that the PBL-based LKPD of business and energy materials developed is included in the category of very suitable for use in the physics learning process based on the results of validation tests of material experts (97.05%) and media experts (90.27%). The response of teachers in the field of study to the LKPD developed (98.83%) and the response of students (92.75%). Based on the calculation of *effect size*, the LKPD based on PBL for business work and energy is in the high category of 3.37 with an average posttest of 82.77%. Thus, it can be concluded that LKPD based on PBL work and energy materials is feasible and effective to be used in learning.

**Keywords:** Development, LKPD, PBL, Work and energy