ABSTRAK

Rhifa Diana. 2022. **PENGARUH MODEL PEMBELAJARAN *PROBLEM BASED LEARNING* (PBL) BERBASIS LABORATORIUM TERHADAP KETERAMPILAN PEMECAHAN MASALAH PADA MATERI TEORI KINETIK GAS**

Penelitian ini dilatar belakangi oleh rendahnya keterampilan pemecahan masalah peserta didik pada materi teori kinetik gas dan kurangnya inovasi penggunaan model dalam pembelajaran Fisika. Upaya yang dilakukan peneliti untuk mengatasi masalah tersebut adalah dengan menerapkan model pembelajaran *Problem Based Learning* (PBL) berbasis laboratorium. Tujuan penelitian ini adalah untuk mengetahui pengaruh model pembelajaran *Problem Based Learning* (PBL) berbasis laboratorium terhadap keterampilan pemecahan masalah peserta didik pada materi teori kinetik gas di kelas XI IPA SMA Negeri 1 Cilimus tahun ajaran 2021/2022. Penelitian ini dilaksanakan mulai bulan September 2021 sampai dengan bulan April 2022 di SMA Negeri 1 Cilimus. Metode Penelitian yang digunakan adalah *quasi experiment* dengan desain penelitian *pretest-posttest control group desain*. Populasi penelitian ini yaitu seluruh kelas XI IPA SMA Negeri 1 Cilimus sebanyak 6 kelas dengan jumlah peserta didik 213 orang. Sampel penelitian diambil dengan menggunakan teknik *cluster random sampling* sebanyak 2 kelas, yaitu kelas XI IPA 6 sebagai kelas eksperimen dan kelas XI IPA 1 sebagai kelas kontrol, dengan rincian masing-masing kelas berjumlah 36 peserta didik. Untuk mengukur keterampilan pemecahan masalah peserta didik dilakukan tes sebelum perlakuan (*pretest*) dan setelah diberi perlakuan (*posttest*) berbentuk esai dengan jumlah soal 14 butir pada materi teori kinetik gas. Masing-masing soal tersebut mencakup 4 indikator keterampilan pemecahan masalah. Teknik analisis data yang digunakan adalah uji prasyarat (uji normalitas, uji homogenitas), dan uji hipotesis (uji t). Hasil uji hipotesis menggunakan uji t pada taraf signifikansi ($\alpha = 0,05$) menunjukkan bahwa setelah diterapkannya model *Problem Based Learning* (PBL) berbasis laboratorium diperoleh $t_{hitung} > t_{tabel}$ sehingga H_0 ditolak. Artinya pada taraf kepercayaan 95% dapat disimpulkan bahwa ada pengaruh model pembelajaran *Problem Based Learning* (PBL) berbasis laboratorium terhadap keterampilan pemecahan masalah pada materi teori kinetik gas di kelas XI IPA SMA Negeri 1 Cilimus tahun ajaran 2021/2022.

Kata kunci: keterampilan pemecahan masalah, model pembelajaran *Problem Based Learning* (PBL) berbasis laboratorium, teori kinetik gas.

ABSTRACT

Rhifa Diana. 2022. **THE EFFECT OF THE LABORATORY-BASED PROBLEM LEARNING (PBL) MODEL ON PROBLEM-SOLVING SKILLS IN GAS KINETIC THEORY MATERIALS**

This research is motivated by the low problem-solving skills of students in the kinetic theory of gases and the lack of innovation in the use of models in physics learning. Efforts made by researchers to overcome these problems are by applying a laboratory-based *Problem Based Learning* (PBL) learning model. The purpose of this study was to determine the effect of the laboratory-based *Problem Based Learning* (PBL) learning model on students' problem-solving skills on gas kinetic theory material in class XI IPA SMA Negeri 1 Cilimus in the 2021/2022 academic year. This research was conducted from September 2021 to April 2022 at SMA Negeri 1 Cilimus. The research method used is a quasi-experimental research design with a pretest-posttest control group design. The population of this study was all 6 classes of science class XI SMA Negeri 1 Cilimus with a total of 213 students. The research sample was taken using a cluster random sampling technique of 2 classes, namely class XI IPA 6 as the experimental class and class XI IPA 1 as the control class, with details of each class totaling 36 students. To measure the problem-solving skills of students, a pre-treatment test (pretest) and after being given treatment (posttest) was conducted in the form of an essay with a total of 14 questions on the kinetic theory of gases. Each of these questions includes 4 indicators of problem-solving skills. The data analysis technique used is the prerequisite test (normality test, homogeneity test), and hypothesis testing (t-test). The results of hypothesis testing using the t-test at the significance level ($\alpha = 0.05$) show that after the implementation of the laboratory-based *Problem Based Learning* (PBL) model, it is obtained that is $t_{count} > t_{table}$ so that H_0 is rejected. This means that at the 95% confidence level, it can be concluded that there is an influence of the laboratory-based *Problem Based Learning* (PBL) learning model on problem-solving skills in gas kinetic theory material in class XI IPA SMA Negeri 1 Cilimus in the 2021/2022 academic year.

Keywords: problem-solving skills, laboratory-based *Problem Based Learning* (PBL) learning model, kinetic gas theory.