

## ABSTRAK

**Rahma Khairani Putri, NIM. 8176176016. Pengaruh Model *Project Based Learning* Terhadap Keterampilan *Critical Thinking, Creative Thinking, Collaboration, & Communication (4C)* Fisika di SMA.** Tesis. Medan Program Studi Pendidikan Fisika, Pascasarjana Universitas Negeri Medan. 2021.

Penelitian ini bertujuan untuk (1) mengetahui perbedaan keterampilan *critical thinking, creative thinking, collaboration, & communication (4C)* siswa akibat pengaruh penerapan model *project based learning (PjBL)* dengan pembelajaran konvensional, (2) mengetahui peningkatan masing-masing keterampilan *critical thinking, creative thinking, collaboration, & communication (4C)* siswa akibat penerapan model *project based learning (PjBL)*. Jenis penelitian yang digunakan dalam penelitian ini adalah *quasi experiment*. Populasi dalam penelitian ini adalah seluruh siswa kelas XI MIA MAN Tapanuli Selatan T.P 2020/2021. Pengambilan sampel dilakukan dengan cara *cluster random sampling* dengan mengambil 2 kelas sampel. Instrumen yang digunakan dalam penelitian ini adalah instrumen tes dalam bentuk uraian untuk keterampilan berpikir kritis dan berpikir kreatif dan instrumen nontes dalam bentuk observasi untuk keterampilan komunikasi dan kolaborasi yang telah divalidasikan. Analisis data yang digunakan adalah uji manova untuk keterampilan berpikir kritis dan keterampilan berpikir kreatif sedangkan keterampilan komunikasi dan kolaborasi menggunakan analisis N-gain. Berdasarkan hasil analisis data diperoleh bahwa keterampilan 4C siswa yang diajarkan dengan model PjBL lebih baik daripada keterampilan 4C siswa yang diajarkan dengan pembelajaran konvensional. Persentase peningkatan N-gain pada keterampilan *critical thinking* siswa adalah 75,40% (kategori tinggi), keterampilan *creative thinking* siswa adalah 90,78% (kategori tinggi), keterampilan *collaboration* siswa 15,37% (kategori rendah), dan keterampilan *communication* siswa 80% (kategori tinggi).

**Kata Kunci:** *Project Based Learning (PjBL)*, keterampilan berpikir kritis, keterampilan berpikir kreatif, keterampilan kolaborasi, keterampilan komunikasi

## ABSTRACT

**Rahma Khairani Putri, NIM. 8176176016. The Effect of Project Based Learning Model's on Critical Thinking Skills, Creative Thinking Skills, Collaboration Skills, & Communication Skills (4C) Physics in Senior High School.** Thesis. Medan Department of Physics Education, Postgraduate of State University of Medan. 2021.

This study aims to (1) determine the differences in students' critical thinking, creative thinking, collaboration, & communication (4C) skills due to the effect of implementing project based learning (PjBL) models with conventional learning, (2) determine the improvement of students' critical thinking, creative thinking, collaboration, & communication (4C) skills due to the application of the project based learning (PjBL) model. The type of research used in this research is quasi-experimental. The population in this study were all students of class XI MIA MAN Tapanuli Selatan T.P 2020/2021. The sampling was done by cluster random sampling by taking 2 sample classes. The instruments used in this research are test instruments in the form of descriptions for critical thinking skills and creative thinking and non-test instruments in the form of observations for validated communication and collaboration skills. The data analysis used was the Manova test for critical thinking skills and creative thinking skills, whereas the N-gain analysis was used for communication and collaboration skills. Based on the results of data analysis, it was found that the 4C skills of students taught by the PjBL model were better than the 4C skills of students taught by conventional learning. The N-gain percentage in students' critical thinking skills are increased by 75.40% (high category), students' creative thinking skills are increased by 90.78% (high category), students' collaboration skills are increased by 15.37% (low category), and students' communication skills are increased by 80% (high category).

**Keywords: Project Based Learning (PjBL), Critical Thinking Skills, Creative Thinking Skills, Collaboration Skills, Communication Skills**