# ABSTRAK

**Maryam Jamilah. Nim 8186142005. Inovasi Penuntun Praktikum Kimia Berbasis Stem-Pjbl Untuk Meningkatkan Keterampilan Proses Sains dan Hasil Belajar Siswa Kelas XI. Tesis: Program Pascasarjana, Universitas Negeri Medan, 2023.**

Penelitian ini bertujuan untuk memperoleh data analisis kebutuhan dan kelayakan penuntun praktikum STEM-PjBL yang dikembangkan sesuai standar BSNP, mengetahui perbedaan nilai hasil belajar, nilai keterampilan proses sains serta respon siswa terhadap penggunaan penuntun praktikum kimia STEM-PjBL yang dikembangkan. Penelitian dilakukan di MAN Insan Cendekia Aceh Timur menggunakan metode R & D dengan model ADDIE. Populasi penelitian terdiri dari seluruh siswa kelas XI IPA dengan sampel siswa kelas XI MIPA 2 dan XI MIPA 3 yang dibagi menjadi kelas kontrol dan eksperimen. Instrumen penelitian terdiri dari angket kelayakan BSNP yang dimodifikasi, instrumen tes hasil belajar siswa berupa soal pilihan berganda; serta lembar observasi keterampilan proses sains siswa. Uji hipotesis dilakukan dengan uji T (Independent Sample T-Test) dengan menggunakan taraf signifikansi 5% ($\alpha$=0,05. Hasil penelitian diperoleh nilai rata-rata kelayakan buku penuntun yang digunakan di sekolah yaitu 2,4 dinyatakan kurang layak dan perlu direvisi, nilai rata-rata kelayakan penuntun praktikum kimia terintegrasi STEM-PjBL yang dikembangkan yaitu 3,52 dengan kategori layak untuk digunakan dalam pembelajaran dan tidak perlu direvisi. Siswa yang dibelajarkan menggunakan penuntun praktikum kimia terintegrasi STEM-PjBL memberikan nilai rata-rata hasil belajar 73,22 yang lebih tinggi dibandingkan siswa yang dibelajarkan menggunakan penuntun praktikum di sekolah yaitu 71,06. Terdapat perbedaan nilai rata-rata Keterampilan Proses Sains (KPS) siswa di kelas eksperimen yaitu 83.52, sedangkan pada kelas kontrol memperoleh nilai 77.98. Siswa memberikan respon yang positif terhadap pemanfaatan penuntun praktikum kimia terintegrasi STEM-PjBL yang dikembangkan sebagai penunjang pelaksanaan pembelajaran kimia di sekolah.

**Kata kunci** : Penuntun praktikum, STEM, Pembelajaran Berbasis Proyek (PjBL), Keterampilan Proses Sains (KPS), ADDIE.

## ABSTRACT

**Maryam Jamilah. Nim. 8186142005. The Innovation of STEM-PjBL-based Chemistry Practicum Guide to Improve Science Process Skills and Learning Outcomes of Class XI Students. Thesis: Postgraduate Program, Medan State University, 2023.**

This study aims to obtain analysis data on the needs and feasibility of the STEM-PjBL practicum guide developed according to BSNP standards, to find out the differences in the value of learning outcomes, the value of science process skills and student responses to the use of the developed STEM-PjBL chemistry practicum guide. The research was carried out at MAN Insan Cendekia in East Aceh using the R & D method with the ADDIE model. The research population consisted of all students of class XI IPA with a sample of students in class XI MIPA 2 and XI MIPA 3 which were divided into control and experimental classes. The research instrument consisted of a modified BSNP feasibility questionnaire, student learning outcomes test instruments in the form of multiple choice questions; as well as observation sheets of students' science process skills. Hypothesis testing was carried out by T-test (Independent Sample T-Test) using a significance level of 5% ($\alpha$=0.05). The results showed that the average feasibility of the guidebook used in schools was 2.4, which was declared inadequate and needed to be revised. The average feasibility of the STEM-PjBL integrated chemistry practicum guide developed was 3.52, which was categorized as feasible for use in learning and do not need to be revised. Students who were taught using the STEM-PjBL integrated chemistry practicum guide gave an average learning result of 73.22 which was higher than students who were taught using the practicum guide at school, which was 71.06. There is a difference in the average value of Science Process Skills (KPS) of students in the experimental class, which is 83.52, while the control class gets a score of 77.98. Students gave a positive response to the use of the STEM-PjBL integrated chemistry practicum guide which was developed as a support for the implementation of chemistry learning in schools.



**Keywords:** Chemistry practicum guide, STEM, Project Based Learning (PjBL), Science Process Skills (KPS), learning outcomes, ADDIE.