# ENHANCE STUDENTS' SCIENCE PROCESS SKILLS AND CREATIVITY ON ELECTRICITY THROUGH STEAM BASED LEARNING

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Arranged by:

ILFA QURROTA AINI

1903556

**INTERNATIONAL PROGRAM ON SCIENCE EDUCATION**

**FACULTY OF MATHEMATICS AND SCIENCE EDUCATION**

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Oleh
Ilfa Qurrota Aini

Sebuah skripsi yang diajukan untuk memenuhi salah satu syarat memperoleh gelar Sarjana Pendidikan pada Fakultas Pendidikan Matematika dan Ilmu Pengetahuan Alam


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**APPROVAL FORM FOR RESEARCH PAPER**

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Approved and confirm by:

Supervisor I

Dr. Eka Cahya Prima, S.Pd., M.T

NIP. 199006262014041001

Supervisor II

Dr. Nanang Winarno, S.Si., S.Pd., M.Pd

NIP. 198403212014041001

Head of International program on Science Education Study Program

Prof. Dr. Ida Kaniawati, M.Si

NIP. 196807031992032001

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Ilfa Qurrota Aini

International Program On Science Education

Ilfa.qurrota@upi.edu

## ABSTRACT

SPS is the basis for students to explore the surrounding environment, improve achievement in the academic field, and improve the quality of life by understanding the nature of science. The purpose of this study is to improve science process skills and student creativity by using STEAM-based learning on electricity topic with a simple home electrical installation project. This research is quantitative with pre-experimental one group pretest posttest research design. The population of this study were 33 students from grade 8 of one of the junior high school in Cimahi. The data obtained result in an average increase from pretest to posttest scores of 29.03 to 68.36. The test was conducted with a parametric test using the paired sample t-test method. Data analysis resulted in a sig value of 0.000 which means sig <0.05 and concluded that there is a significant difference in students' science process skills. The highest increasing skills is students' observing skill and the lowest increase is formulating hypotheses. Students' creativity was assessed from project 1 and project 2 using Creativity Product Analysis Matrix (CPAM) rubric. The assessment results showed 75 in project 1 which was categorized as "enough". and increased to 81 which is categorized as "good". Based on these results, it is concluded that STEAM-based learning can improve students' science process skills and creativity and can be used as an alternative learning for junior high school students.

Keywords: Creativity, Electricity, Science process skills, STEAM-based learning.

# MENINGKATKAN KEMAMPUAN PROSES SAINS SISWA PADA TOPIK KELISTRIKAN DENGAN MENGGUNAKAN PENDEKATAN PEMBELAJARAN STEAM

Ilfa Qurrota Aini

International Program On Science Education

Ilfa.qurrota@upi.edu

## ABSTRAK

SPS menjadi dasar untuk siswa agar dapat mengeksplorasi lingkungan sekitar, meningkatkan pencapaian dalam bidang akademik, dan meningkatkan kualitas hidup dengan memahami hakikat ilmu pengetahuan. Oleh karena itu, tujuan dari penelitian ini adalah untuk meningkatkan kemampuan proses sains dan kreativitas siswa dengan menggunakan pembelajaran berbasis STEAM pada materi kelistrikan dengan projek membuat instalasi listrik rumah sederhana. Penelitian ini bersifat kuantitatif dengan desain penelitian pre-eksperimental *one group pretest posttest*. Popoulasi penelitian ini adalah 33 orang siswa dari kelas 8 salah satu sekolah menengah pertama (SMP) di Cimahi. Data yang diperoleh mengahasilkan peningkatan rata-rata pretest ke posttest adalah 29.03 menjadi 68.36. Pengolahan data dilakukan dengan parametrik test menggunkaan metode uji t sampel berpasangan. Pengolahan data menghasilkan nilai sig 0.000 yang berarti sig <0.05 dan dapat disimpulkan bahwa terdapat perbedaan signifikan dalam kemampuan proses sains siswa. Peningkatan kemampuan tertinggi ada pada kemampuan siswa dalam observasi sedangkan peningkatan terendah ada dalam kemampuan siswa untuk membuat hipotesis. Kreativitas siswa dinilai dari projek ke 1 dan projek ke 2 dengan menggunakan *Creativity Product Analysis Matrix* (CPAM) rubrik. Hasil penilaian menunjukkan 75 pada projek 1 yang dikategori "cukup" dan meningkat menjadi 81 yang dikategorikan "baik". Berdasarkan hasil tersebut disimpulkan bahwa pembelajaran berbasis STEAM dapat meningkatkan kemampuan proses sains dan kreativitas siswa dan dapat dijadikan menjadi salah satu pembelajaran alternatif untuk siswa SMP.

Kata kunci: Kelistrikan, Kemampuan Proses Sains, Kreativitas, Pembelajaran berbasis STEAM

## TABLE OF CONTENT

## LIST OF TABLE

# LIST OF FIGURES

## LIST OF APPENDICE

## REFERENCES


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