

Ibdaul Mawaddah. 2025. *Pengaruh Model Pembelajaran Problem based learning dengan Pendekatan STEM terhadap Hasil Belajar Siswa pada Materi Topologi dan Arsitektur Jaringan*. Skripsi, Program Studi Pendidikan Informatika, Fakultas Ilmu Pendidikan, Universitas Trunojoyo Madura. Pembimbing : Puji Rahayu Ningsih, S.Pd., M.Pd.

ABSTRAK

Kesulitan siswa memahami materi salah satunya dapat disebabkan oleh pemilihan model pembelajaran yang kurang sesuai. Penelitian ini bertujuan untuk mengetahui pengaruh model pembelajaran *problem based learning* dengan pendekatan STEM terhadap hasil belajar siswa pada materi Topologi dan Arsitektur Jaringan, beserta aktivitas keterlaksanaan pembelajaran dan respon siswanya. Penelitian ini menggunakan metode kuantitatif dengan model penelitian eksperimen. Populasi yang digunakan sebanyak 46 siswa kelas XI TKJ di SMKN 1 Sepulu, dimana 22 siswa kelas XI TKJ 2 sebagai kelas eksperimen dan 24 siswa kelas X TKJ 2 sebagai kelas kontrol. Peneliti menggunakan pretest, posttest, wawancara, observasi, dan angket untuk mengumpulkan data. Berdasarkan hasil penelitian diperoleh, (1) Terdapat pengaruh model pembelajaran *problem based learning* dengan pendekatan STEM dengan hasil belajar siswa (ranah kognitif) berdasarkan uji signifikan dengan hasil $t_{hitung} > t_{tabel}$ atau $2,739 > 2,085$, sehingga H_a diterima. (2) Aktivitas pelaksanaan pembelajaran menggunakan model *problem based learning* dengan pendekatan STEM menunjukkan hasil baik. aktivitas guru memperoleh presentase 82,22% dengan kategori “baik” dan aktivitas siswa memperoleh presentase 86,93% dengan kategori “baik”. (3) Respon siswa pada pembelajaran dengan model *problem based learning* dengan pendekatan STEM memperoleh presentase 83,53% berkategori baik dari siswa. Sehingga dapat disimpulkan bahwa terdapat pengaruh model pembelajaran *problem based learning* dengan pendekatan STEM terhadap hasil belajar siswa pada mata pelajaran topologi dan arsitektur jaringan kelas XI TKJ di SMKN 1 Sepulu.

Kata Kunci: Hasil belajar, *Problem Based Learning*, STEM, topologi dan arsitektur jaringan

Ibdaul Mawaddah. 2025. *The Effect of Problem Based Learning Model with STEM Approach on Student Learning Outcomes in Topology and Network Architecture Material*. Thesis, Informatics Education Study Program, Faculty of Education, Trunojoyo University, Madura. Advisor: Puji Rahayu Ningsih, S.Pd., M.Pd.

ABSTRACT

Student's difficulty in understanding the material can be caused by the selection of an inappropriate learning model, which has an impact on student learning outcomes. This study aims to determine the effect of the problem based learning model with the STEM approach on student learning outcomes in the Topology and Network Architecture material, along with the implementation of learning activities and student responses. This study uses a quantitative method with an experimental research model. The population used was 46 students of class XI TKJ at SMKN 1 Sepulu, where 22 students of class XI TKJ 2 as the experimental class and 24 students of class X TKJ 2 as the control class. The researcher used pretest, posttest, interview, observation, and questionnaire to collect data. Based on the results of the study, (1) There is an effect of the problem based learning model with the STEM approach on student learning outcomes (cognitive domain) based on a significant test with the results of $t_{count} > t_{table}$ or $2.739 > 2.085$, so H_a is accepted. (2) The implementation activities of learning using the problem based learning model with the STEM approach showed good results. Teacher activity obtained a percentage of 82.22% with the category "good" and student activity obtained a percentage of 86.93% with the category "good". (3) Student responses to learning with the problem based learning model with the STEM approach obtained a percentage of 83.53% in the good category from students. So it can be concluded that there is an influence of the problem based learning model with the STEM approach on student learning outcomes in the subject of topology and network architecture for class XI TKJ at SMKN 1 Sepulu.

Keywords: *Learning outcomes, Problem Based Learning, STEM, topology and network architecture*