

**PENGARUH MODEL *LEARNING CYCLE* 7E BERBANTUAN
SIMULASI PHET TERHADAP KETERAMPILAN BERPIKIR KRITIS
SISWA DALAM PEMBELAJARAN FISIKA DI SMA**

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ABSTRAK

Penelitian ini bertujuan untuk menganalisis perbedaan keterampilan berpikir kritis siswa dalam pembelajaran fisika di SMA antara kelas siswa yang dibelajarkan dengan model *Learning Cycle* 7E (*Elicit, Engagement, Exploration, Explanation, Elaboration, Evaluation, dan Extend*) berbantuan simulasi PhET (LC7ESP), *Learning Cycle* 7E Konvensional (LC7EK), dan *Direct Instruction* (DI). Penelitian ini berjenis *quasi experiment* dengan desain *one way pretest-posttest nonequivalent control group*. Populasi dalam penelitian ini adalah 300 siswa kelas XI MIPA di SMA Negeri 4 Singaraja. Sampel penelitian terdiri atas 136 siswa yang didistribusikan ke dalam tiga kelas. Analisis data keterampilan berpikir kritis siswa dilakukan melalui analisis deskriptif dan statistik. Pengujian hipotesis menggunakan taraf signifikansi 5%. Hasil uji ANAKOVA diperoleh sebagai berikut. Pertama, keterampilan berpikir kritis siswa sebelum perlakuan (*pretest*) memiliki pengaruh signifikan secara statistik terhadap keterampilan berpikir kritis siswa setelah perlakuan (*posttest*). Hal ini ditunjukkan dengan nilai F_{hitung} sebesar 41,147 dan tingkat signifikansi $p = 0,000 < 0,05$. Kedua, terdapat perbedaan keterampilan berpikir kritis siswa antara kelompok yang belajar dengan model LC7ESP, LC7EK, dan DI. Hal ini dibuktikan dengan hasil uji hipotesis menggunakan ANAKOVA yang menunjukkan nilai $F_{hitung} = 138,670$ dengan $p = 0,000 < 0,05$. Hasil *posttest* keterampilan berpikir kritis siswa menunjukkan bahwa kelompok LC7ESP lebih unggul daripada kelompok LC7EK, dan kelompok LC7EK lebih unggul daripada kelompok DI. Hal ini ditunjukkan dengan nilai rata-rata keterampilan berpikir kritis siswa kelompok model LC7ESP berada pada kategori sangat tinggi ($M = 85,62$; $SD = 7,04$) sedangkan kelompok model LC7EK berada pada kategori tinggi ($M = 74,34$; $SD = 9,62$) dan kelompok model DI berada pada kategori cukup ($M = 58,64$; $SD = 8,64$).

Kata Kunci: *learning cycle* 7E, PhET, *direct instruction*, keterampilan berpikir kritis

ABSTRACT

This research aimed to analyze the differences in students' critical thinking skills in high school physics learning between classes of students who were taught using the 7E Learning Cycle model (Elicit, Engagement, Exploration, Explanation, Elaboration, Evaluation, and Extend) assisted by PhET simulations (LC7ESP), the Conventional 7E Learning Cycle (LC7EK), and Direct Instruction (DI). This research was a quasi-experiment with a one-way pretest-posttest nonequivalent control group design. The population in this study was 300 students of class XI MIPA at SMA Negeri 4 Singaraja. The research sample consisted of 136 students who were distributed into three classes. The data analysis of students' critical thinking skills was conducted through descriptive and statistical analysis. Hypothesis testing used a significance level of 5%. The results of the ANCOVA test were obtained as follows. First, students' critical thinking skills before treatment (pretest) had a statistically significant effect on students' critical thinking skills after treatment (posttest). This was shown by the F-value of 41.147 and a significance level of $p = 0.000 < 0.05$. Second, there were differences in students' critical thinking skills between the groups that learned with the LC7ESP, LC7EK, and DI models. This was proven by the results of hypothesis testing using ANCOVA, which showed an F-value of 138.670 with $p = 0.000 < 0.05$. The posttest results of students' critical thinking skills showed that the LC7ESP group was superior to the LC7EK group, and the LC7EK group was superior to the DI group. This was shown by the average value of students' critical thinking skills in the LC7ESP model group being in the very high category ($M = 85.62$; $SD = 7.04$), while the LC7EK model group was in the high category ($M = 74.34$; $SD = 9.62$), and the DI model group was in the sufficient category ($M = 58.64$; $SD = 8.64$).

Keywords: 7E learning cycle, PhET, direct instruction, critical thinking skills.