

**PENGARUH *SIMULATION BASED LEARNING* BERBANTUAN
APLIKASI *PHET* TERHADAP HASIL BELAJAR MATERI PECAHAN
PADA SISWA KELAS IV SD**

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh penggunaan *simulation-based learning* berbantuan aplikasi *PhET* terhadap hasil belajar materi pecahan pada siswa kelas IV. Penelitian ini merupakan jenis penelitian eksperimen semu (*quasi experimental design*), dengan desain *Nonequivalent Group Design*. Populasi dalam penelitian ini adalah seluruh kelas IV SD Gugus Budi Utomo Denpasar Timur. Sampel penelitian diambil dengan teknik *cluster random sampling*. Sampel penelitian ini kelompok eksperimen yaitu siswa kelas IV SDN 14 Kesiman yang berjumlah 34 orang dan siswa kelas IV SDN 6 Kesiman yang berjumlah 29 orang sebagai kelompok kontrol. Data penelitian dikumpulkan menggunakan metode tes dengan instrumen tes objektif. Data yang diperoleh dianalisis dengan menggunakan statistik deskriptif dan statistik inferensial. Hasil analisis uji hipotesis menggunakan uji-*t* *polled varians* menunjukkan bahwa nilai t_{hitung} adalah 3,580 dan nilai t_{tabel} pada taraf signifikansi 5% dengan derajat kebebasan $dk = (n_1 + n_2 - 2) = 61$ sebesar 2,000. Hasil tersebut menunjukkan bahwa nilai $t_{hitung} (3,580) > t_{tabel} (2,000)$, maka H_0 ditolak dan H_1 diterima. Dengan demikian, dapat disimpulkan bahwa terdapat pengaruh penerapan *Simulation-Based Learning* berbantuan aplikasi *PhET* terhadap hasil belajar siswa materi pecahan pada siswa kelas IV SD.

Kata Kunci: *Simulation Based Learning, PhET, Hasil Belajar*

***THE EFFECT OF SIMULATION BASED LEARNING ASSISTED BY THE
PHET APPLICATION ON LEARNING OUTCOMES OF FRACTION
MATERIAL IN GRADE IV ELEMENTARY SCHOOL STUDENTS***

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ABSTRAK

This study aims to determine the effect of using simulation-based learning assisted by the PhET application on learning outcomes of fraction material in grade IV students. This study is a quasi-experimental study with a Nonequivalent Group Design. The population was all fourth-grade students at Gugus Budi Utomo Elementary School, East Denpasar. The sample was taken using a cluster random sampling technique. The experimental group consisted of 34 fourth-grade students, while the control group consisted of 29 fourth-grade students. Data were collected using a test method with an objective test instrument. The data were analyzed using descriptive statistics and inferential statistics (t-test). The results of the hypothesis test analysis using the pooled variance t-test show that the t-count value is 3.580 and the t-table value at a significance level of 5% with degrees of freedom $dk = (n_1 + n_2 - 2) = 61$ is 2.000. These results indicate that the t-count value (3.580) > t-table (2.000). Therefore, the null hypothesis (H_0) is rejected and H_1 is accepted. Thus, it can be concluded that the implementation of Simulation-Based Learning assisted by the PhET application has an effect on student learning outcomes in fractions in fourth-grade elementary school students.

Kata Kunci: *Simulation Based Learning, PhET, Learning Outcomes*