

**THE EFFECT OF THE JIGSAW TYPE COOPERATIVE LEARNING
MODEL USED BY PHET SIMULATION MEDIA ON THE OUTCOMES OF
SCIENCE LEARNING IN GRADE IV ELEMENTARY SCHOOL**

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ABSTRACT

This study aims to describe the application of the Jigsaw Cooperative Model in grade IV of elementary school, to determine the differences in learning outcomes between students who use the Jigsaw Cooperative Model and students who use the Jigsaw Cooperative Model assisted by PhET Simulation, and to determine the effect of the application of the Jigsaw Cooperative Model assisted by PhET Simulation on the learning outcomes of students in science in grade IV of elementary school. This study uses a quantitative method with a quasi-experimental design of the nonequivalent control group design. Data collection techniques are carried out through pretest and posttest. The research sample consisted of 36 students in grade IV of SD Negeri 062 Ciujung Bandung, which were divided into 18 students in the experimental class and 18 students in the control class. The results of the study showed that the learning process with the Jigsaw Cooperative Model assisted by PhET Simulation went very well. The average pretest score of the experimental class was 53.11, while the control class was 50.56. After being given treatment, the average posttest score of the experimental class increased to 85.94, higher than the control class which only reached 73.22. The results of the Independent Sample T-test obtained a significance value of $0.001 < 0.05$, and the effect size test showed a Cohen's d value of 1.884 which is categorized as very large. Thus, there is a significant and large influence of the Jigsaw Type Cooperative model assisted by PhET Simulation on science learning outcomes, so that H_0 is rejected and H_1 is accepted. Constraints found during the implementation of the study include limited school facilities and the diversity of student characteristics.

Keywords: *Jigsaw Type Cooperative Model, PhEt Simulation Media and Learning Outcomes*