

## ABSTRACT

**Annisa Nadhilla, IDN 4213151001 (2025). The Effect of Guided Inquiry Learning Model Based on PhET Media on Critical Thinking Skills of Junior High School Students in Vibration and Wave Material.**

Science learning in the 21st century or the technological century. Learning carried out in Indonesia is still less encouraging for the achievement of critical thinking skills of students. The study aims to determine the Effect of Guided Inquiry Learning Model based on PhET Media on Critical Thinking Skills of Junior High School Students in Vibration and Wave Material. The type of research used is a quasi-experimental with Pretest and Posttest Control Group Design. The population in the study were all students of class VIII UPT SMP Negeri 27 Medan, totaling 317 students. The research sample was taken using probability sampling techniques, namely VIII-3 as the experimental class and VIII-2 as the control class, each class consisting of 30 students. The instrument used was multiple choice consisting of 20 validated questions. Data analysis techniques used normality test, homogeneity test, hypothesis test and n-gain test. The results of the study were obtained from hypothesis testing using the Independent T-Test 2-Tailed test obtained Sig. (2-tailed) of 0.000. The N-gain test in the experimental class obtained a result of 0.74 with a high category, so it can be concluded that the application of the guided inquiry learning model based on PhET media has an influence on improving students' critical thinking skills in vibration and wave material in class VIII UPT SMP Negeri 27 Medan. The study is useful as information material for teachers, as alternative material for selecting learning models and as a reference for researchers to study the same research.

**Keywords:** Guided Inquiry, PhET, Critical Thinking Skills, Vibration, Wave

