PENGARUH MODEL *CONTEXTUAL TEACHING AND LEARNING* BERBANTUAN MEDIA *GEOGEBRA* TERHADAP KOMPETENSI PENGETAHUAN MATEMATIKA SISWA KELAS V DI GUGUS I ABIANSEMAL TAHUN AJARAN 2025/2026

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ABSTRAK

Penelitian ini bertujuan untuk menguji pengaruh model pembelajaran *Contextual Teaching and Learning* berbantuan media *GeoGebra* terhadap kompetensi pengetahuan Matematika siswa sekolah dasar. Penelitian ini dilatarbelakangi oleh rendahnya kompetensi pengetahuan Matematika siswa yang disebabkan oleh proses pembelajaran yang masih bersifat konvensional, kurang mengaitkan materi dengan konteks kehidupan nyata, serta minimnya pemanfaatan media pembelajaran berbasis teknologi. Oleh karena itu, diperlukan penerapan model pembelajaran yang mampu melibatkan siswa secara aktif dan bermakna. Penelitian ini menggunakan pendekatan eksperimen dengan desain *quasi experiment* tipe *non equivalent pre-test post-test control group design*. Subjek penelitian adalah siswa kelas V SD Gugus I Abiansemal yang terdiri atas kelas eksperimen dan kelas kontrol, yang dipilih menggunakan teknik *Cluster Random Sampling*. Kelas eksperimen diberikan perlakuan berupa penerapan model pembelajaran *Contextual Teaching and Learning* berbantuan media *GeoGebra*, sedangkan kelas kontrol diberikan pembelajaran konvensional. Data kompetensi pengetahuan Matematika siswa didapatkan menggunakan metode tes berbentuk soal pilihan ganda, kemudian dianalisis menggunakan statistik deskriptif dan inferensial dengan uji-t. Secara deskriptif, rata-rata skor kompetensi pengetahuan Matematika siswa pada kelas eksperimen lebih tinggi dibandingkan dengan rata-rata skor pada kelas kontrol. Hasil analisis uji-t menunjukkan bahwa nilai t_{hitung} sebesar 4,773 lebih dari t_{tabel} sebesar 2,000 pada taraf signifikansi 5%, sehingga H_0 ditolak dan H_a diterima. Hal ini berarti terdapat pengaruh yang signifikan model *Contextual Teaching and Learning* berbantuan media *GeoGebra* terhadap kompetensi pengetahuan Matematika siswa. Dengan demikian, model pembelajaran *Contextual Teaching and Learning* berbantuan media *GeoGebra* terbukti efektif dalam meningkatkan kompetensi pengetahuan Matematika siswa. Penelitian ini berimplikasi bahwa penerapan model *Contextual Teaching and Learning* berbantuan media *GeoGebra* pada materi keliling bangun datar dapat

dijadikan sebagai alternatif strategi pembelajaran untuk meningkatkan kompetensi pengetahuan Matematika di sekolah dasar.

Kata Kunci: Model Pembelajaran *Contextual Teaching and Learning*, *GeoGebra*, Kompetensi Pengetahuan, Matematika, Sekolah Dasar

THE EFFECT OF THE CONTEXTUAL TEACHING AND LEARNING MODEL USED BY GEOGEBRA MEDIA ON THE MATHEMATICAL KNOWLEDGE COMPETENCY OF GRADE V STUDENTS IN GUDUS I ABIANSEMAL IN THE 2025/2026 ACADEMIC YEAR

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ABSTRACT

This study aims to examine the effect of the Contextual Teaching and Learning (CTL) model assisted by GeoGebra media on the Mathematics knowledge competence of elementary school students. The study was motivated by the low level of students' Mathematics knowledge competence, which is caused by conventional teaching practices, the lack of connection between learning materials and real-life contexts, and the limited use of technology-based instructional media. Therefore, it is necessary to implement a learning model that actively and meaningfully engages students in the learning process. This research employed an experimental approach using a quasi-experimental design with a non-equivalent pre-test post-test control group design. The subjects of the study were fifth-grade students of SD Gugus I Abiansemal, consisting of an experimental class and a control class selected through Cluster Random Sampling. The experimental class was treated using the Contextual Teaching and Learning model assisted by GeoGebra media, while the control class received conventional instruction. The data on students' Mathematics knowledge competence were collected using a multiple-choice test and analyzed using descriptive and inferential statistics with an independent samples t-test. Descriptively, the mean score of students' Mathematics knowledge competence in the experimental class was higher than that of the control class. The results of the t-test analysis showed that the $t_{count\ value}$ (4.773) was greater than the $t_{table\ value}$ (2.000) at a 5% significance level, indicating that H_0 was rejected and H_a was accepted. This means that there was a significant effect of the Contextual Teaching and Learning model assisted by GeoGebra media on students' Mathematics knowledge competence. In conclusion, the Contextual Teaching and Learning model assisted by GeoGebra media proved to be effective in improving students' Mathematics knowledge competence. The findings imply that the implementation of the CTL model assisted by GeoGebra media in the topic of perimeter of plane figures can be used as an alternative instructional strategy to enhance Mathematics knowledge competence in elementary schools.

Keywords: Contextual Teaching and Learning Model, GeoGebra, Knowledge Competence, Mathematics, Elementary School