

## ABSTRAK

Penelitian ini bertujuan untuk mengkaji dan mendeskripsikan peningkatan kemampuan pemahaman dan penalaran matematis siswa SMP yang menggunakan pembelajaran dengan pendekatan *Creative Problem Solving* berbantuan *Algebrator* dibandingkan dengan siswa yang menggunakan pembelajaran dengan pendekatan *Creative Problem Solving* tanpa bantuan *Algebrator*. Desain penelitian ini adalah *pretes postes tanpa kelompok kontrol*, dimana kedua kelas diperlakukan sebagai kelas eksperimen 1 dan eksperimen 2. Kelas eksperimen 1 diberi perlakuan pembelajaran dengan pendekatan *Creative Problem Solving* berbantuan *Algebrator* dan kelas eksperimen 2 diberi perlakuan pembelajaran dengan pendekatan *Creative Problem Solving* tanpa bantuan *Algebrator*. Populasi penelitian ini adalah seluruh siswa kelas VII di salah satu SMP Negeri di Kecamatan Cibeber dengan sampel penelitian kelas VIIC dan VIID yang dipilih secara *purposive sampling*. Data penelitian ini diperoleh dari dua jenis instrumen yaitu tes dan non tes. Instrumen jenis tes digunakan untuk mengukur kemampuan pemahaman dan penalaran matematis siswa sedangkan instrumen non tes adalah skala sikap siswa, lembar observasi aktivitas siswa dan guru. Analisis data dilakukan secara kuantitatif. Analisis kuantitatif dilakukan terhadap data gain ternormalisasi kemampuan pemahaman dan penalaran matematis siswa antara kedua kelas sampel dengan menggunakan uji perbedaan rataan dua populasi. Perbedaan dua rataan dihitung menggunakan uji-t. Hasil penelitian menunjukkan bahwa peningkatan kemampuan pemahaman dan penalaran matematis siswa yang menggunakan pembelajaran dengan pendekatan *Creative Problem Solving* berbantuan *Algebrator* lebih baik daripada siswa yang menggunakan pembelajaran dengan pendekatan *Creative Problem Solving* tanpa bantuan *Algebrator*. Sedangkan untuk melihat perbedaan peningkatan kemampuan pemahaman dan penalaran matematis siswa ditinjau dari KAS, digunakan uji statistik analisis varians (ANOVA) satu jalur. Hasil uji statistik menunjukkan tidak ada perbedaan untuk siswa level tinggi dengan sedang pada kemampuan pemahaman. Sedangkan pada kemampuan penalaran yang menunjukkan tidak ada perbedaan yaitu siswa level sedang dengan rendah. Hasil skala sikap juga menunjukkan sikap yang positif siswa terhadap pembelajaran dengan pendekatan *Creative Problem Solving* berbantuan *Algebrator* baik secara total maupun berdasarkan level siswa pada kelas eksperimen1.

**Kata kunci:** Pendekatan *Creative Problem Solving*, *Algebrator*, Kemampuan Pemahaman dan Penalaran Matematis.

## ABSTRACT

The research aimed to study and describe the improvement of understanding ability and mathematical reasoning of junior secondary school students using *Algebrator*-aided Creative Problem Solving approach compared to those treated with Creative Problem Solving without the aid of *Algebrator*. The research used the design of pre-test and post-test without control group, where two classes were treated as experimental class 1 and experimental class 2. Experimental class 1 was treated with the instructional approach of *Algebrator*-aided Creative Problem Solving, and Experimental class 2 was treated with Creative Problem Solving without the aid of *Algebrator*. The population of this research was all seventh graders in one of state junior secondary schools in Cibeber District, while the sample consisted of seventh graders of C and D classes selected through purposive sampling. Data for this research were gained using two instruments, namely test and non-test. The test instrument was used to measure the students' understanding ability and mathematical reasoning, while the non-test instrument took the forms of student behaviour scale and student and teacher activity observation sheets. The data were analysed quantitatively, and the analysis was done on the normalized gain data of understanding ability and mathematical reasoning of students from the two sample classes using difference test for two population means. Research results demonstrated that the improvement of understanding ability and mathematical reasoning of students treated with *Algebrator*-aided Creative Problem Solving by was better than those treated with Creation Problem Solving without the aid of *Algebrator*. Meanwhile, to see the difference in the improvement of understanding ability and mathematical reasoning from the aspect of students' initial ability, one-way ANNOVA was employed. The statistic test results showed that there was no difference in understanding ability between students with a high and moderate level. On the other hand, no difference in the improvement of reasoning ability was found between students with a moderate and low level. The outcomes of behaviour scale also demonstrated students' positive attitudes towards instruction using the approach of *Algebrator*-aided Creative Problem Solving, both as a whole and based on students' levels in the experimental class 1.

**Keywords:** Creative Problem Solving Approach, *Algebrator*, Understanding Ability, and Mathematical Reasoning.