

ABSTRAK

Beni Yusepa. G.P. Peningkatan Kemampuan Representasi dan Abstraksi Matematis serta *Self-Awareness* Siswa SMP melalui *Cognitive Apprenticeship Instruction*.

Tujuan penelitian ini adalah menelaah secara menyeluruh pencapaian dan peningkatan kemampuan representasi matematis (KRM) dan kemampuan abstraksi matematis (KAbM) serta kualitas pencapaian *self-awareness* siswa yang memperoleh *Cognitive Apprenticeship Instruction* (CAI) dan pembelajaran konvensional (PKV) ditinjau dari: keseluruhan, level sekolah, dan Kemampuan Awal Matematis (KAM). Penelitian ini adalah jenis eksperimen semu dengan desain kelompok kontrol pretes-postes. Populasi dalam penelitian ini adalah siswa SMP di kota Bandung Provinsi Jawa Barat yang masuk sekolah level tinggi dan sedang. Subyek sampel dalam penelitian ini adalah dua kelas VIII di sekolah level tinggi dan dua kelas VIII di sekolah level sedang sebanyak 139 siswa yang dipilih secara *purposive*. Analisis data dalam pengujian hipotesis digunakan uji-t, uji-t', Anova dua jalur, dan uji Rank Spearman. Hasil yang diperoleh dalam penelitian ini adalah: 1) Pencapaian dan peningkatan KRM siswa yang memperoleh CAI lebih baik daripada pencapaian KRM siswa yang memperoleh PKV ditinjau dari: keseluruhan, level sekolah, dan KAM; 2) Tidak ada interaksi antara pembelajaran (CAI dan PKV) dan KAM (tinggi, sedang, rendah) terhadap: a) pencapaian KRM siswa, b) peningkatan KRM siswa; 3) Tidak ada interaksi antara pembelajaran (CAI dan PKV) dan level sekolah (tinggi, sedang) terhadap: a) pencapaian KRM siswa, b) peningkatan KRM siswa; 4) Pencapaian dan peningkatan KAbM siswa yang memperoleh CAI lebih baik daripada pencapaian KAbM siswa yang memperoleh PKV ditinjau dari: keseluruhan, level sekolah, dan KAM (tinggi, sedang); 5) Tidak ada interaksi antara pembelajaran (CAI dan PKV) dan KAM (tinggi, sedang, rendah) terhadap: a) pencapaian KAbM siswa, b) peningkatan KAbM siswa; 6) Tidak ada interaksi antara pembelajaran (CAI dan PKV) dan level sekolah (tinggi, sedang) terhadap: a) pencapaian KAbM siswa, b) peningkatan KAbM siswa; 7) Pencapaian *self-awareness* siswa yang memperoleh *Cognitive Apprenticeship Instruction* (CAI) lebih baik daripada siswa yang memperoleh pembelajaran konvensional (PKV) ditinjau dari: keseluruhan, level sekolah, dan KAM (tinggi, sedang); 8) Tidak terdapat interaksi antara pembelajaran (CAI dan PKV) dan KAM (tinggi, sedang, rendah) terhadap *self-awareness* siswa; 9) Tidak terdapat interaksi antara pembelajaran (CAI dan PKV) dan level sekolah (tinggi, sedang) terhadap *self-awareness* siswa; dan 10) Terdapat korelasi antara: a) kemampuan representasi dan kemampuan abstraksi matematis, b) kemampuan representasi matematis dan *self-awareness* siswa, dan c) kemampuan abstraksi

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matematis dan *self-awareness* siswa. Korelasi pada a), b), dan c) termasuk dalam klasifikasi cukup.

Kata kunci : representasi matematis, abstraksi matematis, *self-awareness*, dan *cognitive apprenticeship instruction*

ABSTRACT

Beni Yusepa. G.P. The Enhancement of Mathematical Representation Ability, Mathematical Abstraction Ability and Self-awareness of High School Students through Cognitive Apprenticeship Instruction.

The purpose of this research is to comprehensively review the students achievement and enhancement in mathematical representation ability (MRA), mathematical abstraction ability (MAA), and the quality self-awareness who have received cognitive apprenticeship instruction (CAI) and students who received conventional learning (CL) in terms of: overall, school levels, and Mathematical Prior Knowledge (MPK). This study is a quasi-experiment research with a pretest-posttest control group design. The population of this study is junior high school students in Bandung, West Java Province, who are classified as high and medium in terms of school level. The sample subjects in this study are two groups of eight grader of high-level school and two groups of eight grader of middle-level school that consist of 139 students who have been selected with purposive sampling. The data analysis in hypothesis testing is t-test, t'-test, two-way Anova, and Rank Spearman test. The results in this study are: 1) The achievement and the enhancement of students' MRA who obtained CAI are better than the achievement and enhancement of students' MRA who obtained CL viewed from: overall, school level, and MPK; 2) There is no interaction between learnings (CAI and CL) and MPK (high, medium, low) towards: a) the achievement of students' MRA, b) the enhancement of students' MRA; 3) there is no interaction between learnings (CAI and CL) and school levels (high, medium) towards: a) the achievement of students' MRA, b) the enhancement of students' MRA; 4) The achievement and enhancement of students' MAA who have obtained CAI are better than the achievement of students' MAA who have received CL in terms of: overall, school levels, and MPK (high, medium); 5) There is no interaction between learning (CAI and PKV) and MPK (high, medium, low) towards: a) achievement of students' MAA, b) the enhancement of students' MAA; 6) There is no interaction between learnings (CAI and CL) and school levels (high, medium) towards: a) the achievement of students' MAA, b) the enhancement of students' MAA; 7) The achievement of students' self-awareness who received cognitive apprenticeship instruction (CAI) is better than students who received conventional learning (CL) in terms of: overall, school levels, and MPK (high, medium); 8) There is no interaction between learning (CAI and CL) and MPK (high, medium, low) towards students' self-awareness; 9) There is no interaction between learnings (CAI and CL) and school levels (high, medium) towards students' self-awareness; and 10) There are correlation between: a) students' MRA and MAA, b) students' MRA and students' self-awareness, and c) students' MAA

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and students' self-awareness. Correlation a level of a), b), and c) are included in medium classification.

Keywords: mathematical representation, mathematical abstraction, *self-awareness*, and *cognitive apprenticeship instruction*