EFEKTIVITAS PEMBELAJARAN MATEMATIKA DENGAN MODEL *BRAIN BASED LEARNING* DITINJAU DARI PRESTASI BELAJAR DAN KEMAMPUAN METAKOGNISI SISWA

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui efektivitas pembelajaran matematika dengan pendekatan Saintifik model *Brain Based Learning* dan pembelajaran matematika dengan pendekatan Saintifik model *Cooperative Learning* ditinjau dari prestasi belajar dan kemampuan metakognisi siswa kelas X SMAN 2 Yogyakarta, serta untuk mengetahui apakah pendekatan Saintifik model *Brain Based Learning* lebih efektif dibandingkan dengan pendekatan Saintifik model *Cooperative Learning* ditinjau dari prestasi belajar dan kemampuan metakognisi siswa kelas XI SMAN 2 Yogyakarta.

Jenis penelitian ini adalah eksperimen semu dengan desain *Pretest Posttest Group Design.* Populasi penelitian ini adalah siswa kelas XI SMAN 2 Yogyakarta dengan sampel penelitian berjumlah 59 siswa yang dipilih secara acak sederhana (*simple random sampling*) yaitu kelas XI PMIIA 3 sebagai kelas eksperimen dan kelas XI PMIIA 5 sebagai kelas kontrol. Instrumen yang digunakan untuk mengumpulkan data adalah tes prestasi belajar, tes kemampuan metakognisi siswa, dan lembar keterlaksanaan pembelajaran. Validitas instrumen menggunakan validitas isi oleh para ahli, yaitu tiga dosen pendidikan matematika UNY. Statistik uji dilakukan dengan menggunakan uji *Hotelling's Trace.*

Berdasarkan hasil analisis data diperoleh kesimpulan bahwa: 1) pembelajaran matematika dengan pendekatan Saintifik model *Brain Based Learning* efektif secara simultan ditinjau dari prestasi belajar dan kemampuan metakognisi siswa kelas XI SMAN 2 Yogyakarta, 2) pembelajaran matematika dengan pendekatan Saintifik model *Cooperative Learning* tidak efektif secara simultan ditinjau dari prestasi belajar dan kemampuan metakognisi siswa kelas XI SMAN 2 Yogyakarta, dan 3) pembelajaran matematika dengan pendekatan Saintifik model *Brain Based Learning* lebih efektif secara simultan dibandingkan dengan pembelajaran matematika dengan pendekatan Saintifik model *Cooperative Learning* ditinjau dari prestasi belajar dan kemampuan metakognisi siswa kelas XI SMAN 2 Yogyakarta

Kata kunci: Brain Based Learning, *Prestasi belajar, Kemampuan metakognisi*

EFFECTIVENESS OF MATHEMATICS LEARNING WITH *BRAIN BASED LEARNING* MODEL IN TERMS OF STUDENT ACHIEVEMENT AND METACOGNITION ABILITY

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ABSTRACT

This research aims to determine the effectiveness of mathematics learning with Scientific approach *Brain Based Learning* model and mathematics learning with Scientific approach *Cooperative Learning* model in terms of student achievement and metacognition ability of XIth grade students of SMAN 2 Yogyakarta, and determine whether Scientific approach *Brain Based Learning* model is more effective than Scientific approach *Cooperative Learning* model in terms of student achievement and metacognition ability of Xth grade students of SMAN 2 Yogyakarta.

The type of this study is quasi experiment using *Pretest Posttest Group Design.* The research population were XIth grade students of SMAN 2 Yogyakarta with 59 students who selected by simple random sampling as samples in this research, those are XI PMIIA 3 as experiment class and XI PMIIA 5 as control class. The instrument used to collect the data are student achievement test, student metacognition ability test, and learning implementation sheets. The validity of instrument using content validity by experts, those are three lecturers of UNY mathematics education. Statistical test using *Hotelling's Trace.*

Based on the data analysis, concluded that; 1) mathematics learning with Scientific approach *Brain Based Learning* model simultaneously effective in terms of student achievement and metacognition ability of XIth grade students of SMAN 2 Yogyakarta, 2) mathematics learning with Scientific approach *Cooperative Learning* model not simultaneously effective in terms of student achievement and metacognition ability of XIth grade students of SMAN 2 Yogyakarta, and 3) mathematics learning with Scientific approach *Brain Based Learning* model more simultaneously effective than mathematics learning with Scientific approach *Cooperative Learning* model in terms of student achievement and metacognition ability of XIth grade students of SMAN 2 Yogyakarta

Kata kunci: Brain Based Learning, *student achievement, metacognition ability*