PENERAPAN MODEL *PROBLEM-BASED LEARNING* BERBANTUAN GEOGEBRA UNTUK MENINGKATKAN KEMAMPUAN LITERASI MATEMATIS DAN KEMANDIRIAN BELAJAR SISWA SMA

oleh

Nida Amelya Al Fitriani

Abstrak

Kemampuan literasi matematis dan kemandirian belajar merupakan aspek penting yang harus dimiliki oleh siswa. Namun, kemampuan literasi matematis dan kemandirian belajar siswa dinilai masih rendah. Penelitian ini bertujuan untuk: 1) mengetahui peningkatan kemampuan literasi matematis siswa yang memperoleh model *Problem-Based Learning* berbantuan GeoGebra lebih tinggi daripada siswa yang memperoleh model pembelajaran biasa; 2) mengetahui kemandirian belajar siswa yang memperoleh model *Problem-Based Learning* berbantuan GeoGebra lebih baik daripada siswa yang memperoleh model pembelajaran biasa; 3) mengetahui terdapat korelasi antara kemampuan literasi matematis dan kemandirian belajar siswa yang memperoleh model *Problem-Based Learning* berbantuan GeoGebra; 4) mengetahui efektivitas model *Problem-Based Learning* berbantuan GeoGebra terhadap peningkatan kemampuan literasi matematis siswa. Metode penelitian ini adalah penelitian kuantitatif dengan rancangan kuasi eksperimen. Desain penelitian yang digunakan adalah *nonequivalent control group design*. Instrumen penelitian yang digunakan berupa tes soal uraian kemampuan literasi matematis dan angket kemandirian belajar. Hasil uji coba instrumen menunjukkan bahwa instrumen tes dan non tes layak digunakan karena telah memenuhi kriteria instrumen yang andal. Hasil penelitian menunjukkan: 1) peningkatan kemampuan literasi matematis siswa yang memperoleh model *Problem-Based Learning* berbantuan GeoGebra lebih tinggi daripada siswa yang memperoleh model pembelajaran biasa; 2) kemandirian belajar siswa yang memperoleh model *Problem-Based Learning* berbantuan GeoGebra lebih baik daripada siswa yang memperoleh model pembelajaran biasa; 3) terdapat korelasi antara kemampuan literasi matematis dan kemandirian belajar siswa yang memperoleh model *Problem-Based Learning* berbantuan GeoGebra; 4) efektivitas model *Problem-Based Learning* berbantuan GeoGebra terhadap peningkatan kemampuan literasi matematis tergolong kategori besar.

Kata Kunci: *Problem-Based Learning*, GeoGebra, Literasi Matematis, Kemandirian Belajar

APPLICATION OF PROBLEM-BASED LEARNING WITH GEOGEBRA TO IMPROVE ABILITY OF MATHEMATICAL LITERACY AND SELF-REGULATED LEARNING OF HIGH SCHOOL STUDENTS

by

Nida Amelya Al Fitriani

Abstract

Mathematical literacy ability and self-regulated learning are important aspects that must be possessed by students. However, students' mathematical literacy ability and learning independence are still considered low. This study aims to: 1) find out the enhancement of mathematical literacy ability of students who obtain Problem-Based Learning model with GeoGebra is higher than those who obtain ordinary learning model; 2) find out the self-regulated learning of students who obtain Problem-Based Learning model with GeoGebra better than those who obtain ordinary learning model; 3) there is a correlation between mathematical literacy ability and self-regulated learning of students who obtain Problem-Based Learning model with GeoGebra; 4) find out that the effectiveness of Problem-Based Learning model with GeoGebra on improving students' mathematical literacy ability. This research method is quantitative research with quasi-experimental design. The research design used was nonequivalent control group design. The research instrument used was a test about the description of mathematical literacy ability and questionnaires regarding students' self-regulated learning. The results of the instrument trials show that the test and non tes instruments are feasible to use because it meets the criteria of a reliable instrument. Research results showed: 1) the enhancement of mathematical literacy ability of students who obtained Problem-Based Learning model with GeoGebra is higher than those who obtained ordinary learning model; 2) the self-regulated learning of students who obtained Problem-Based Learning model with GeoGebra is better than those who obtained ordinary learning model; 3) there is a correlation between mathematical literacy ability and self-regulated learning of students who obtained Problem-Based Learning model with GeoGebra; 4) the effectiveness of the Problem-Based Learning with GeoGebra to mathematical literacy ability is classified as a large category.

Keywords: *Problem-Based Learning, GeoGebra, Mathematical Literacy, Self-regulated Learning*

IMPLEMENTASI MODEL PROBLEM-BASED LEARNING KALAWAN GEOGEBRA PIKEUN NGARONJATKEUN KAMAMPUH LITERASI MATEMATIS SARTA KAMANDIRIAN SISWA SMA

ku

Nida Amelya Al Fitriani

Ringkesan

Kamampuh literasi matematis sarta kamandirian mangrupa aspék penting anu kudu dipimilik ku siswa. Sanajan kitu, kamampuh literasi matematis siswa jeung kamandirian masih dianggap kurang. Tujuan panalungtikan pikeun: 1) mikanyaho ngaronjatna kamampuh literasi matematis siswa anu meunangkeun modél Problem-Based Learning kalawan GeoGebra leuwih luhur batan anu meunangkeun modél pangajaran biasa; 2) mikanyaho kamandirian siswa anu meunangkeun modél Problem-Based Learning kalawan GeoGebra leuwih hade tinimbang anu meunang model pangajaran biasa; 3) aya korélasi antara kamampuh literasi matematis jeung kamandirian siswa anu meunangkeun modél Problem-Based Learning kalawan GeoGebra; 4) mikanyaho éféktivitas modél Problem-Based Learning kalawan GeoGebra dina ngaronjatkeun kamampuh literasi matematis siswa. Métode ieu panalungtikan nya éta panalungtikan kuantitatif kalawan desain kuasi ékspérimén. Desain panalungtikan anu digunakeun nya éta nonequivalent control group design. Instrumén panalungtikan anu digunakeun nya éta tés ngeunaan déskripsi kamampuh literasi matematis jeung angkét ngeunaan kamandirian siswa. Hasil uji coba instrumén nuduhkeun yén instrumén tés jeung non tés layak digunakeun sabab nyumponan kritéria instrumén anu bisa dipercaya. Hasil panalungtikan némbongkeun: 1) ngaronjatna kamampuh literasi matematis siswa anu meunangkeun modél Problem-Based Learning kalawan GeoGebra leuwih luhur batan anu meunang modél pangajaran biasa; 2) pangajaran kamandirian siswa anu meunangkeun modél Problem-Based Learning kalawan GeoGebra leuwih hade tinimbang anu meunang modél pangajaran biasa; 3) aya korélasi antara kamampuh literasi matematis jeung kamandirian siswa anu meunangkeun modél Problem-Based Learning kalawan GeoGebra; 4) éféktivitas modél Problem-Based Learning kalawan GeoGebra kana kamampuh literasi matematis digolongkeun kana kategori badag.

Sanggem konci: *Problem-Based Learning, GeoGebra, Literasi Matematis, Kamandirian*