ABSTRACT

Nurul Jannah. 2020. The Effect of the Application of the Problem Based Learning (PBL) Model on the Improvement of Mathematical Problem Solving Ability and Learning Independence of Students of MAN Pekanbaru City. Master Program in Mathematics and Natural Sciences Education, State University of Padang.

Based on the results of TIMSS and PISA and the results of preliminary studies conducted by researchers, it was shown that the students' mathematical problem solving and independent learning abilities were still in the low category. Efforts to overcome these problems by applying the Problem Based Learning (PBL) model in mathematics learning. The purpose of this study was to determine the effect of the application of the PBL model on students 'mathematical problem solving abilities and independent learning in terms of students' initial mathematical abilities. This research belongs to the experimental research type. The study population was the students of class XI MIA MAN Pekanbaru City. Each school chooses one class as the experimental class, namely class XI MIA 4 from MAN 1 Pekanbaru and class XI MIA 1 from MAN 2 Pekanbaru. The instrument used was the pretest and posttest question sheets based on indicators of problem-solving abilities and student learning independence questionnaires. The data from the problem-solving ability test and learning independence questionnaire from the two sample groups were analyzed using paired t test and Wilcoxon test.

Based on the results of data analysis, the following conclusions were obtained: (1) the students' mathematical problem solving abilities after the application of the PBL model were better than before the PBL model was applied. (2) Students' mathematical problem solving abilities with high initial abilities after the application of the PBL model are better than before the PBL model is applied. (3) Students' mathematical problem solving abilities with moderate initial abilities after the application of the PBL model are better than before the PBL model is applied. (4) Students' mathematical problem solving abilities with low initial abilities after the application of the PBL model are better than before the PBL model was applied. (5) the learning independence of students after the PBL model is applied is better than before the PBL model is applied. (6) the learning independence of students with high initial abilities after the application of the PBL model is better than before the PBL model is applied. (7) the learning independence of students with moderate initial abilities after the application of the PBL model is better than before the PBL model was applied. (8) the learning independence of students with low initial abilities after the application of the PBL model is better than before the PBL model was applied.

Keywords: Problem Based Learning, Mathematical Problem Solving Ability, Learning Independence.

ABSTRAK

Nurul Jannah. 2020. Pengaruh Penerapan Model Problem Based Learning (PBL) terhadap Peningkatan Kemampuan Pemecahan Masalah Matematis dan Kemandirian Belajar Siswa MAN Kota Pekanbaru. Program Studi Magister Pendidikan Matematika dan Ilmu Pengetahuan Alam Universitas Negeri Padang.

Berdasarkan hasil TIMSS dan PISA serta hasil studi pendahuluan yang dilakukan peneliti, menunjukkan bahwa kemampuan pemecahan masalah matematis dan kemandirian belajar siswa masih dalam kategori rendah. Upaya untuk mengatasi permasalahan tersebut dengan menerapkan model *Problem Based Learning* (PBL) dalam pembelajaran matematika. Tujuan penelitian ini adalah untuk mengetahui pengaruh penerapan model PBL terhadap kemampuan pemecahan masalah matematis dan kemandirian siswa ditinjau dari kemampuan awal matematis siswa. Penelitian ini digolongkan kepada jenis penelitian eksperimen. Populasi penelitian adalah siswa kelas XI MIA MAN di Kota Pekanbaru. Masing-masing sekolah dipilih satu kelas sebagai kelas eksperimen yaitu kelas XI MIA 4 dari MAN 1 Pekanbaru dan XI MIA 1 dari MAN 2 Pekanbaru. Instrumen yang digunakan yaitu lembar soal pretest dan posttest berdasarkan indikator kemampuan pemecahan masalah dan angket kemandirian belajar siswa. Data hasil tes kemampuan pemecahan masalah dan angket kemandirian belajar dari dua kelompok sampel dianalisis menggunakan uji t berpasangan dan uji Wilcoxon.

Berdasarkan hasil analisis data diperoleh kesimpulan: (1) kemampuan pemecahan masalah matematis siswa setelah diterapkan model PBL lebih baik dibandingkan sebelum diterapkan model PBL. (2) kemampuan pemecahan masalah matematis siswa berkemampuan awal tinggi setelah diterapkan model PBL lebih baik dibandingkan sebelum diterapkan model PBL. (3) kemampuan pemecahan masalah matematis siswa berkemampuan awal sedang setelah diterapkan model PBL lebih baik dibandingkan sebelum diterapkan model PBL. (4) kemampuan pemecahan masalah matematis siswa berkemampuan awal rendah setelah diterapkan model PBL lebih baik dibandingkan sebelum diterapkan model PBL. (5) kemandirian belajar siswa setelah diterapkan model PBL lebih baik dibandingkan sebelum diterapkan model PBL. (6) kemandirian belajar siswa berkemampuan awal tinggi setelah diterapkan model PBL lebih baik dibandingkan sebelum diterapkan model PBL. (7) kemandirian belajar siswa berkemampuan awal sedang setelah diterapkan model PBL lebih baik dibandingkan sebelum diterapkan model PBL. (8) kemandirian belajar siswa berkemampuan awal rendah setelah diterapkan model PBL lebih baik dibandingkan sebelum diterapkan model PBL.

Kata Kunci : **Pembelajaran Berbasis PBL, Kemampuan Pemecahan Masalah Matematis, Kemandirian Belajar**