

**PENINGKATAN *MATHEMATICAL KNOWLEDGE FOR TEACHING* DAN  
*BELIEFS* MAHASISWA CALON GURU MATEMATIKA MELALUI  
PEMBELAJARAN BERBASIS MASALAH PEDAGOGIS**

**DISERTASI**

diajukan untuk memenuhi sebagian syarat untuk memperoleh gelar Doktor  
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2019**

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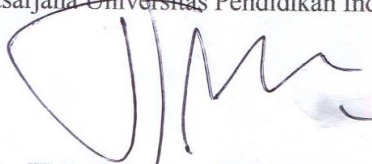
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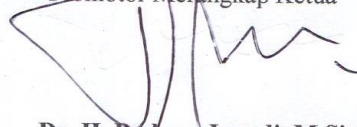
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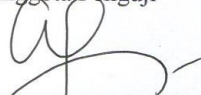
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## ABSTRAK

**Tina Sri Sumartini (2019).** Peningkatan *Mathematical Knowledge for Teaching* dan *Beliefs* Mahasiswa Calon Guru Matematika Melalui Pembelajaran Berbasis Masalah Pedagogis.

Penelitian ini secara umum bertujuan untuk mengkaji peningkatan *Mathematical Knowledge for Teaching* (MKT) mahasiswa calon guru matematika yang belajar dengan model Pembelajaran Berbasis Masalah Pedagogis (PBMP) dan Pembelajaran Konvensional (PK), mengetahui korelasi antara *Subject Matter Knowledge* (SMK) dan *Pedagogical Content Knowledge* (PCK), serta mengetahui gambaran *beliefs* mahasiswa. Metode yang digunakan yaitu quasi eksperimen dengan desain *the pretes post-tes non-equivalent group*. Populasi penelitian ini yaitu mahasiswa Program Studi Pendidikan Matematika S1 pada salah satu LPTK di provinsi Jawa Barat dan sampel yang digunakan yaitu mahasiswa Program Studi Pendidikan Matematika S1 Institut Pendidikan Indonesia semester 5 tahun akademik 2018/2019. Hasil yang diperoleh yaitu: 1) Peningkatan MKT mahasiswa calon guru matematika yang belajar dengan PBMP lebih baik daripada mahasiswa calon guru matematika yang belajar dengan PK; 2) Berdasarkan kategori Kemampuan Awal Matematika (KAM) tinggi dan rendah, tidak terdapat perbedaan peningkatan MKT mahasiswa calon guru matematika yang belajar dengan PBMP dengan mahasiswa calon guru matematika yang belajar dengan PK; 3) Berdasarkan kategori KAM sedang, peningkatan MKT mahasiswa calon guru matematika yang belajar dengan PBMP lebih baik daripada mahasiswa calon guru matematika yang belajar dengan PK; 4) Tidak terdapat pengaruh interaksi antara Model Pembelajaran dengan KAM terhadap peningkatan MKT mahasiswa calon guru matematika; 5) Terdapat korelasi positif antara SMK dengan PCK mahasiswa calon guru matematika; 6) Mahasiswa calon guru matematika yang memiliki MKT tinggi cenderung memiliki *beliefs* dengan level *problem solving* sedangkan mahasiswa calon guru matematika yang memiliki MKT sedang dan rendah cenderung memiliki *beliefs* dengan level platonis.

Kata Kunci: *Mathematical Knowledge for Teaching*, *Subject Matter Knowledge*, *Pedagogical Content Knowledge*, *Beliefs*, Pembelajaran Berbasis Masalah Pedagogis.

## **ABSTRACT**

Tina Sri Sumartini (2019). Improvement of Mathematical Knowledge for Teaching and Beliefs for Prospective Mathematics Teachers Through Pedagogical Problem Based Learning.

This research generally aims to examine the improvement of Mathematical Knowledge for Teaching (MKT) for prospective mathematics teachers who study Pedagogical Problem Based Learning (PPBL) and Conventional Learning (CL) models, find out the correlation between Subject Matter Knowledge (SMK) and Pedagogical Content Knowledge (PCK), as well as knowing the description of prospective mathematics teachers beliefs. The method used is quasi-experimental with the design of the post-test pretest non-equivalent group. The population consisted of undergraduate students of Mathematics Education Study Program in one of the teacher training and education institutes in the province of West Java and the sample comprised the sixth semester students of Mathematics Education Study Program of the Faculty of Teacher Training and Education at Institut Pendidikan Indonesia for the academic year 2018/2019. The results obtained are: 1) Improvement of MKT prospective mathematics teachers who learn with PPBL better than prospective mathematics teachers who learn with CL; 2) Based on the high and low Mathematics Prior Knowledge (MPK) categories, there is no difference in improvement in MKT prospective mathematics teachers who learn with PPBL with prospective mathematics teachers who study with CL; 3) Based on the category of moderate MPK, improvement of MKT prospective mathematics teachers who learn with PPBL is better than prospective mathematics teachers who study with CL; 4) There is no interaction effect between the learning model and MPK on the improvement of MKT for prospective mathematics teachers ; 5) There is a positive correlation between SMK and PCK of prospective mathematics teachers; 6) Prospective mathematics teachers who have high MKT tend to have beliefs in the level of problem solving while prospective mathematics teachers who have moderate and low MKT tend to have beliefs in the platonic level.

**Keywords:** Mathematical Knowledge for Teaching, Subject Matter Knowledge, Pedagogical Content Knowledge, Beliefs, Pedagogical Problem Based Learning.

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