

**PENGEMBANGAN KEMAMPUAN PEMECAHAN MASALAH DAN
DISPOSISI MATEMATIS SISWA KELAS III MELALUI *REALISTIC
MATHEMATICS EDUCATION* DENGAN *DIDACTICAL ENGINEERING***

DISERTASI

Diajukan untuk Memenuhi sebagian Syarat untuk Memperoleh
Gelar Doktor Pendidikan Dasar



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Pengembangan Kemampuan Pemecahan Masalah dan Disposisi Matematis Siswa Kelas III melalui Realistic Mathematics Education dengan Didactical Engineering

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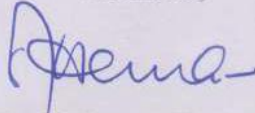
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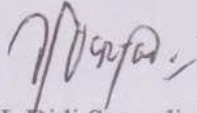
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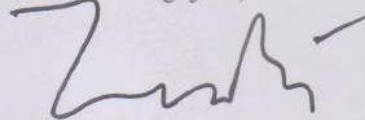
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ABSTRAK

PENGEMBANGAN KEMAMPUAN PEMECAHAN MASALAH DAN DISPOSISI MATEMATIS SISWA KELAS III MELALUI *REALISTIC MATHEMATICS EDUCATION* DENGAN *DIDACTICAL ENGINEERING*

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Penelitian ini dilatarbelakangi hambatan belajar yang dialami oleh siswa sekolah dasar. Hambatan tersebut dikategorikan menjadi tiga hambatan belajar yaitu ontologis, didaktis dan epistemologis. Fokus penelitian ini selain menganalisis hambatan belajar, menyusun hipotesis lintasan belajar, dan merancang bahan ajar yang sesuai dengan karakteristik siswa menggunakan *didactical engineering*. Perancangan tersebut dinilai mampu mengatur setting lingkungan belajar yang meminimalkan hambatan belajar. Penelitian ini menggunakan pendekatan kualitatif dengan metode analisis deskriptif. Subjek penelitian ini adalah 28 siswa kelas tiga sebuah sekolah dasar di Kentungan, Yogyakarta. Pengumpulan data menggunakan instrumen tes berupa soal essay dan instrumen non tes berupa lembar observasi, wawancara, studi dokumen. Hasil penelitian menunjukkan bahwa terdapat perkembangan kemampuan pemecahan masalah matematika siswa SD dan disposisi matematis pada sebagian besar siswa yang mengikuti penerapan pembelajaran pendekatan realistik dengan desain pembelajaran *didactical engineering* yang diawali dari analisis *a priori*, implementasi pembelajaran, analisis *a posteriori*, dan validasi menunjukkan bahwa perlu keberlanjutan dalam pengembangan kemampuan pemecahan masalah dan disposisi matematis siswa SD terutama di kelas III dengan mengakomodir lingkungan belajar yang mendukung proses pembelajaran yang baik dan berpihak kepada murid meliputi situasi *action*, *formulation*, *validation*, dan *institutionalisation*. Rekomendasi yang dapat diberikan adalah kemampuan pemecahan masalah matematika yang baik dipengaruhi oleh berbagai aspek kompetensi lainnya yang memerlukan waktu jangka panjang, sehingga guru perlu terus mengakomodasi kemampuan pemecahan masalah ini dalam setiap pembelajaran yang dilakukan dan disposisi matematis siswa SD dapat dikembangkan semaksimal mungkin dengan memperhatikan motivasi yang dimiliki siswa untuk belajar matematika.

Kata kunci: Kemampuan pemecahan masalah matematis, disposisi matematis, *didactical engineering* dan hambatan belajar

ABSTRACT

DEVELOPING 3RD-GRADE STUDENTS' MATHEMATICAL PROBLEM SOLVING AND DISPOSITION THROUGH REALISTIC MATHEMATICS EDUCATION USING DIDACTICAL ENGINEERING

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This research was conducted based on the learning barriers experienced by elementary school students. There were three categories of learning: ontological, didactic, and epistemological. This research focused on analyzing the learning barriers, formulating hypothetical learning trajectories, and designing teaching materials based on the students' characteristics using didactical engineering. The design is considered capable of regulating the setting of a learning environment that minimizes learning barriers. This study was a qualitative approach with descriptive analysis method. The subjects of this study were 28 third-grade students in Kentungan, Yogyakarta. The data was collected through a test with essay questions and non-test by observation sheets, interviews, and document studies. The results showed that most students who participated in mathematics learning through realistic mathematics education approach with didactical engineering learning design improved their mathematical problem-solving and dispositions abilities. The improvement of students' problem-solving and mathematical dispositions abilities was accommodated by a good learning environment that supports students learning process, including action situations, formulation, validation, and institutionalization. We recommend that good mathematical problem-solving abilities are influenced by various aspects of competence in a long-term process. Therefore, teachers must continue accommodating students' problem-solving abilities in every mathematics lesson, and the students, the mathematical disposition can be developed by through motivations of students to learn mathematics

Key words: problem-solving mathematics, mathematical disposition, didactical engineering, learning challenges

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