

**MENINGKATKAN KEMAMPUAN PEMECAHAN MASALAH DAN  
KONEKSI MATEMATIS SERTA KEMANDIRIAN BELAJAR  
SISWA SMP MELALUI MODEL PEMBELAJARAN CORE  
DENGAN *REALISTIC MATHEMATICS EDUCATION***  
(Suatu Penelitian Ditinjau dari Gaya Kognitif Siswa)

**DISERTASI**

Diajukan untuk Memenuhi Sebagian dari Syarat Memperoleh  
Gelar Doktor dalam Pendidikan Matematika



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**Improving Problem Solving, Mathematical Connection Ability  
and Self-Regulated Learning of Junior High School Students  
through Learning the CORE Model with Realistic Mathematics  
Education (A Study Viewed from Students' Cognitive Style)**

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## ABSTRAK

**Aloisius Loka Son** (2020). Meningkatkan Kemampuan Pemecahan Masalah dan Koneksi Matematis serta Kemandirian Belajar Siswa SMP melalui Pembelajaran Model CORE dengan *Realistic Mathematics Education* (Suatu Penelitian Ditinjau dari Gaya Kognitif Siswa).

Kesiapan siswa untuk menghadapi tantangan dalam kehidupan nyata merupakan masalah krusial. Siswa perlu difasilitasi kemandirian belajar dan pemahaman koneksi matematis agar meningkatkan kemampuan pemecahan masalah matematis mereka. Pembelajaran melalui model CORE dengan RME (CORE RME) pada siswa SMP, mengkondisikan siswa untuk belajar secara mandiri dengan tahapan mengkoneksikan materi pelajaran dengan konteks real, mengorganisaikan informasi yang diperoleh, merefeksi proses dan hasil pemikirannya, serta mengembangkan pemaknaan pengetahuannya. Tujuan penelitian ini untuk mendiskripsikan peningkatan kemampuan pemecahan masalah matematis (KPMM), kemampuan koneksi matematis (KKM), dan kemandirian belajar siswa (KBS) berdasarkan model pembelajaran dan gaya kognitif, serta mengungkap kesalahan yang muncul, sehingga menghasilkan temuan strategi pembelajarannya. Penelitian ini menggunakan *mixed-method* jenis *sequential explanatory* dengan ruang lingkup materi aljabar siswa kelas VII. Penelitian kuantitatif dilakukan untuk menguji peningkatan variabel-variabelnya secara statistik. Alat pengumpulan datanya berupa tes dan kuesioner. Sedangkan penelitian kualitatif dilakukan secara triangulasi untuk mendalami kesalahan-kesalahan yang dilakukan siswa. Hasil penelitian menunjukkan bahwa pembelajaran melalui model CORE RME 1) mencapai target pencapaian dan peningkatan, serta adanya asosiasi masing-masing variabel KPMM, KKM, dan KBS. 2) kesalahan-kesalahan siswa berupa kesalahan faktual, prosedural, dan konseptual. Temuan penelitian ini adalah siswa mampu memecahkan masalah matematis karena memiliki kemandirian belajar dan menguasai koneksi matematis, yang dicapai melalui pembelajaran menggunakan konteks real sebagai *starting point*, dengan tahapannya adalah 1) *connecting*, menekankan prinsip *real context* dan *prior knowledge*, 2) *organizing*, menekankan prinsip *guided reinvention* dan *self-development models*, 3) *reflecting*, menekankan prinsip *metacognition* dan *self-monitoring*, 4) *extending*, menekankan prinsip *intertwining* dan *development model for* pada *real context* lain.

**Kata Kunci:** Pemecahan masalah matematis, Koneksi matematis, kemandirian belajar, model CORE RME, *Field Dependent*, *Field Independent*.

## ABSTRACT

**Aloisius Loka Son** (2020). Improving Problem Solving and Mathematics Connection Ability and Self-Regulated Learning of Junior High School Students through Learning the CORE Model with Realistic Mathematics Education (A Study Viewed from Students' Cognitive Style).

Students' readiness to face challenges in real life is a crucial issue. Students need to be facilitated with self-regulated learning and understanding of mathematical connections to improve their mathematical problem-solving abilities. Learning through the CORE model with RME (CORE RME) in junior high school students' conditions students to learn independently with the stages connecting the subject matter with the real context, organizing the information obtained, reflecting on the process and results of their thinking, and developing the meaning of their knowledge. The purpose of this study is to describe the improvement of mathematical problem-solving abilities (MPSA), mathematical connection abilities (MCA), and self-regulated learning (SRL) based on learning models and cognitive styles, and to uncover errors that arise, so resulting in findings of learning strategies. This study used a mixed-method with a sequential explanatory type with the scope of the algebraic material for grade VII students. Quantitative research is conducted to test the statistical increase in the variables. The data collection tools were tests and questionnaires. Meanwhile, qualitative research was conducted in a triangulation manner to explore the errors made by students. The results showed that learning through the CORE RME model 1) reached the target of achievement and improvement, as well as there were associations for each of the MPSA, MCA, and SRL variables. 2) student errors in the form of factual, procedural, and conceptual errors. The findings of this study are that students are able to solve mathematical problems because they have self-regulated learning and master mathematical connections, which are achieved through learning using real contexts as starting points, with the stages being 1) connecting, emphasizing the principles of real context and prior knowledge, 2) organizing, emphasizing the principles guided reinvention and self-development models, 3) reflecting, emphasizing the principles of metacognition and self-monitoring, 4) extending, emphasizing the principles of intertwining and development "models for" to other real contexts.

**Keywords:** Mathematics Problem Solving, Mathematics Connection, Self-Regulated Learning, CORE RME Model, Field Dependent, Field Independent

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