

**PENERAPAN MODEL PEMBELAJARAN  
KONSEPTUAL INTERAKTIF DENGAN STRATEGI *CM2RA*  
UNTUK MEMPERBAIKI MODEL MENTAL SISWA SMA  
TERKAIT KONSEP-KONSEP PADA MATERI  
RANGKAIAN LISTRIK ARUS SEARAH**

**TESIS**

Diajukan untuk memenuhi sebagian syarat untuk memperoleh gelar  
Magister Pendidikan Fisika



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RAUDHAH

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**PENERAPAN MODEL PEMBELAJARAN KONSEPTUAL INTERAKTIF  
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**ABSTRAK**

Penelitian ini bertujuan untuk mengidentifikasi efektivitas penerapan model Pembelajaran Konseptual Interaktif/ ICI dengan strategi CM2RA (*Contextual, Macroscopic, Microscopic and Representations Analogy*) dan tanpa strategi CM2RA dalam memperbaiki model mental siswa. Metode penelitian yang digunakan adalah kuantitatif bentuk *quasi experiment* dengan desain *pretest and posttest control group*. Subjek penelitian terdiri dari 61 siswa (16 laki-laki dan 45 perempuan) pada salah satu SMA di Provinsi Riau. Instrumen penelitian yang digunakan adalah tes level pemahaman konsep berbentuk *open ended question* terdiri dari 5 soal dimana pada setiap soal terdiri dari 3 pertanyaan. Analisis data untuk menentukan kategori model mental siswa mengacu pada Kurnaz & Eksi (2015), yang terdiri dari dua respons berbentuk verbal dan satu respons berbentuk gambar. Hasil penelitian menunjukkan persentase siswa yang mengalami perbaikan model mental menjadi *scientific* melalui penerapan ICI dengan strategi CM2RA untuk konsep arus listrik sebesar 77% (dari *synthetic* 57% dan *initial* 20%), gaya gerak listrik sebesar 77% (dari *synthetic* 10% dan *initial* 67%), hambatan listrik sebesar 57% dari *initial*, rangkaian seri hambatan listrik sebesar 60% (dari *synthetic* 3% dan *initial* 57%) dan rangkaian paralel hambatan listrik sebesar 63% (dari *synthetic* 3% dan *initial* 60%). Sedangkan Penerapan ICI tanpa strategi CM2RA untuk konsep arus listrik sebesar 26% (dari *synthetic* 19,5% dan *initial* 6,5%), gaya gerak listrik sebesar 10%, hambatan listrik sebesar 0%, rangkaian seri hambatan listrik sebesar 13% dan rangkaian paralel hambatan listrik sebesar 23% yang berasal *initial*. Dapat disimpulkan penerapan ICI dengan strategi CM2RA lebih efektif dalam memperbaiki model mental siswa daripada penerapan ICI tanpa strategi CM2RA.

Kata Kunci: Pembelajaran konseptual interaktif (ICI), Strategi CM2RA, Model mental

**THE IMPLEMENTATION OF INTERACTIVE CONCEPTUAL  
INSTRUCTION LEARNING MODEL WITH *CM2RA* STRATEGY TO  
IMPROVE MENTAL MODELS OF SENIOR HIGH SCHOOL STUDENTS  
RELATED TO THE CONCEPTS ON DIRECT CURRENT ELECTRICAL  
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**ABSTRACT**

The purpose of this study to identification the effectiveness of the implementation of ICI (Interactive Conceptual Learning) models with *CM2RA* (Contextual, Macroscopic, Microscopic and Representations Analogy) strategies and without *CM2RA* strategies in improving students' mental models. The research method utilized a quantitative quasi-experimental form with the pre-test and post-test control group design. The research subject consisted of 61 students (16 male and 45 female) in one senior high schools in Riau Province. The research instrument utilized a level understanding concept test in the form of open-ended questions consisting of 5 questions in which each question consisted of 3 items. Data analysis to determine the category of students' mental models refer to Kurnaz & Eksi (2015), which consists of two verbal responses and one image response. The results showed the percentage of students who experienced an improvement in mental models becoming scientific through the implementation of ICI with the *CM2RA* strategy for the concept of electric current 77% (from synthetic 57% and initial 20%), electromotive force 77% (from synthetic 10% and initial 67 %), electrical resistance 57% from initial, electrical resistance series circuit 60% (from synthetic 3% and initial 57%) and electrical resistance parallel circuit 63% (from synthetic 3% and initial 60%). Whereas ICI implementation without *CM2RA* strategy for the concept of electric current 26% (from synthetic 19.5% and initial 6.5%), electromotive force 10%, electrical resistance 0%, electrical resistance series circuit 13% and electrical resistance parallel circuit 23% originating initial. It can be concluded that the implementation of ICI with the *CM2RA* strategy is more effective in improving students' mental models than the implementation of ICI without the *CM2RA* strategy.

Keyword: Interactive conceptual instruction (*ICI*), *CM2RA* strategy, Mental models

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