MODEL PEMBELAJARAN *RADEC (Read, Answer, Discuss, Explain and Create)* SECARA *ONLINE* BERBANTUAN *CCT (Conceptual Change Text*) PADA PERKULIAHAN KIMIA DASAR PROGRAM STUDI FARMASI UNTUK PENGUASAAN KONSEP DAN MULTI LEVEL REPRESENTASI (*TRIPLE JOHNSTONE*)

Disertasi

Diajukan Untuk Memenuhi Sebagian Syarat Untuk Memperoleh Gelar Doktor Pendidikan IPA
Program Studi Pendidikan Ilmu Pengetahuan Alam

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UNIVERSITAS PENDIDIKAN INDONESIA

2022

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Dengan ini saya menyatakan bahwa disertasi dengan judul " MODEL PEMBELAJARAN RADEC (Read, Answer, Discuss, Explain and Create) SECARA ONLINE BERBANTUAN CCT (Conceptual Change Text) PADA PERKULIAHAN KIMIA DASAR PROGRAM STUDI FARMASI UNTUK PENGUASAAN KONSEP DAN MULTI LEVEL REPRESENTASI (TRIPLE JOHNSTONE)" ini beserta seluruh isinya adalah benar-benar karya saya sendiri. Saya tidak melakukan penjiplakan atau pengutipan dengan cara-cara yang tidak sesuai dengan etika ilmu yang berlaku dalam masyarakat keilmuan. Atas pernyataan ini, saya siap menanggung risiko/sanksi apabila di kemudian hari ditemukan adanya pelanggaran etika keilmuan atau ada klaim dari pihak lain terhadap keaslian karya saya ini.

Jakarta, Desember 2022

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LEMBAR PENGESAHAN DISERTASI

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MODEL PEMBELAJARAN *RADEC (Read, Answer, Discuss, Explain and Create)* SECARA *ONLINE* BERBANTUAN *CCT (Conceptual Change Text)* PADA PERKULIAHAN KIMIA DASAR PROGRAM STUDI FARMASI UNTUK PENGUASAAN KONSEP DAN MULTI LEVEL REPRESENTASI
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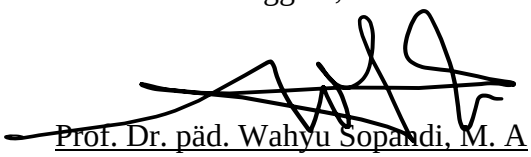

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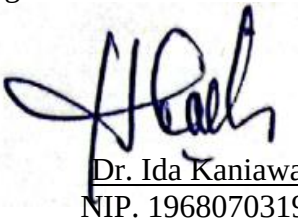

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ABSTRAK

Kimia dasar merupakan materi prasyarat bagi mahasiswa program studi farmasi, sehingga perlu diterapkan pembelajaran kimia dasar yang baik dan utuh. Pada penelitian ini digunakan model pembelajaran *RADEC* secara *online* berbantuan buku ajar *CCT* untuk mengetahui perubahan penguasaan konsep dan dan kemampuan *multi level representasi (Triple Johnstone)*. Tujuan penelitian ini adalah untuk menganalisis penguasaan konsep kimia dasar dan kemampuan *multi level representasi (Triple Johnstone)* dengan model *RADEC* secara *online* berbantuan *CCT* serta memperkirakan faktor-faktor apa saja yang mempengaruhi. Penelitian ini menggunakan *mixed methods* sebagai desain penelitian yang akan menjadi keranga acuan pada penelitian ini. Model penelitian *mixed methods* yang dipilih adalah *embedded experiment.* Desain penelitian kuantitatif menggunakan *quasi eksperimen one group pretest posttest* dan penelitian kualitatif menggunakan fenomologi yang dilakukan selama empat semester dengan responden sebanyak 60 orang. Data yang diolah selanjutnya dianalisis *stacking* dan *racking* menggunakan model *Rasch*. Dari analisis *stacking* diperoleh temuan bahwa mahasiswa mengalami perubahan penguasaan konsep dan kemampuan *multi level representasi (Triple Johnstone).* Sebagian besar mahasiswa berubah dengan kategori meningkat sebanyak 60,8%; tidak mengalami perubahan 37,2%; dan menurun 2%. Pada kemampuan *multi level representasi (Triple Johnstone)* pada level makroskopis meningkat sebanyak 96,7%; tidak mengalami perubahan 3,3%; pada level submikroskopis meningkat sebanyak 88,3%; tidak mengalami perubahan 11,7%; dan pada level simbolik meningkat sebanyak 98,3%; dan menurun 1,7%. Hasil analisis *racking* diperoleh temuan bahwa terjadi penurunan tingkat kesulitan dan ditemukan konsep yang dianggap sulit seperti konsep klasifikasi materi, koloid; teori dan sifat atom, penentuan p, e, n, diagram orbital; penyetaraan reaksi; bentuk molekul; tatanama senyawa kompleks; kadar unsur, rumus empiris, dan kadar air dalam kristal; biloks dan penyetaraan redoks; faktor laju reaksi, orde reaksi, dan perhitungan laju reaksi peran suhu; sinar radioaktif; dan sifat-sifat unsur. Model *RADEC* secara *online* berbantuan *CCT* dapat merubah penguasaan konsep dan kemampuan multi level representasi *(Triple Johnstone).* Selain itu dengan tahapan *RADEC* dan *CCT* yang dikembangkan turut melatih kemandirian, minat membaca, semangat belajar, kemampuan berfikir dan berkomunikasi, menghargai, berfikir tingkat tinggi serta kreatif mengaplikasikan konsep dalam kehidupan sehari-hari.

Kata Kunci: *RADEC;* Pembelajaran *Online; CCT*; *Multi level representasi (Triple Johnstone)* Kimia; *Stacking* dan *Racking.*

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