

**Desain Didaktis Berorientasi *Education For Sustainable Development (ESD)*  
Materi Unsur Tanah Jarang (*Rare Earth Elements*) & Pengaruhnya  
Terhadap Pemahaman *Nature Of Science (NOS)* Mahasiswa Calon Guru  
Kimia**

**TESIS**

Diajukan untuk memenuhi sebagian syarat untuk memperoleh gelar Magister  
Pendidikan Kimia



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**UNIVERSITAS PENDIDIKAN INDONESIA**  
**BANDUNG**  
**2022**

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Materi Unsur Tanah Jarang (*Rare Earth Elements*) & Pengaruhnya  
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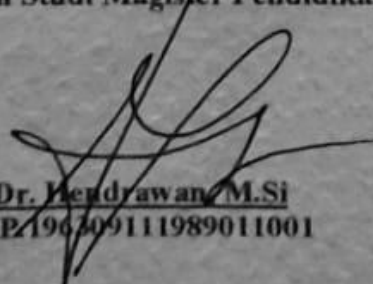
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## PERNYATAAN KEASLIAN TESIS

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Dengan ini menyatakan bahwa tesis dengan judul “**Desain Dedaktis Berorientasi *Education For Sustainable Development (ESD)* Materi Unsur Tanah Jarang (*Rare Earth Elements*) & Pengaruhnya Terhadap Pemahaman *Nature Of Science (NOS)* Mahasiswa Calon Guru Kimia**” 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 resiko/sanksi apabila dikemudian hari ditemukan adanya pelanggaran etika keilmuan atau ada klaim dari pihak lain terhadap keaslian karya saya ini.

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## ABSTRAK

Risnawati Umar (2010220). Desain Didaktis Berorientasi *Education For Sustainable Development* (ESD) Materi Unsur Tanah Jarang (*Rare Earth Elements*) & Pengaruhnya Terhadap Pemahaman *Nature Of Science* (NOS) Mahasiswa Calon Guru Kimia.

Pemahaman NOS sangat erat kaitannya dengan pengembangan literasi sains siswa. Berdasarkan penilaian hasil belajar IPA pada Program for International Student Assessment (PISA), disebutkan bahwa rata-rata literasi sains peserta didik Indonesia tergolong rendah. Oleh karena itu salah satu upaya untuk meningkatkan kemampuan literasi sains adalah dengan memasukan pemahaman nature of science (NOS) kedalam materi pembelajaran kimia unsur tanah jarang (REE) melalui penerapan desain didaktis yang berorientasi pendidikan untuk pembangunan berkelanjutan atau ESD. ESD secara umum telah diberlakukan oleh beberapa negara di dunia berdasarkan rekomendasi PBB “The United Nations Educational Scientific and Cultural Organization” (UNESCO), dimana tujuan utamanya untuk menumbuhkan pengetahuan, nilai-nilai dan sikap peduli lingkungan. Adapun desain didaktis berorientasi ESD yang dikembangkan dalam penelitian ini, diterapkan kepada 26 orang mahasiswa calon guru kimia yang belum belajar tentang kimia unsur tanah jarang. Metode penelitian yang digunakan dalam penelitian ini adalah penelitian desain didaktis dengan pendekatan kualitatif. Ada tiga tahapan yang dilakukan dalam penelitian ini, yaitu yaitu tahap analisis prospektif, tahap pembelajaran terhadap desain yang dikembangkan, dan tahapan analisis retrospektif. Hasil analisis pada penelitian ini menunjukkan bahwa desain didaktis berorientasi ESD yang dikembangkan dapat meminimalisir beberapa learning obstacle mahasiswa dalam memahami aspek-aspek NOS, hal ini didukung oleh capaian skor yang diperoleh mahasiswa. Hasil angket tanggapan mahasiswa terhadap desain didaktis ini menunjukkan rata-rata tanggapan mahasiswa sangat baik (94%). Berdasarkan hasil penelitian ini, diketahui bahwa desain didaktis berorientasi ESD yang dikembangkan dapat dijadikan sebagai salah satu alternatif bahan ajar pada pembelajaran kimia unsur tanah jarang.

Kata Kunci: Desain Didaktis, Education for sustainable development (ESD), Pemahaman, Nature Of Science (NOS), Kimia Unsur Tanah Jarang.

## ABSTRACT

Risnawati Umar (2010220). **Dedactic Design Oriented by Education For Sustainable Development (ESD) for Rare Earth Elements & Their Influence on Understanding Nature Of Science (NOS) Chemistry Teacher Candidates.**

The understanding of nature of science (NOS) is closely related to the development of students' scientific literacy. Based on the assessment of science learning outcomes in the Program for International Student Assessment (PISA), it is stated that the average scientific literacy of Indonesian students is low. Therefore, one of the efforts to improve scientific literacy skills is to incorporate an understanding of NOS into rare earth element (REE) learning materials through the application of education-oriented didactic designs for sustainable development or ESD. ESD has generally implemented by several countries in the world based on the recommendations of the United Nations Educational, Scientific and Cultural Organization (UNESCO), where the main goal is to foster knowledge, values and attitudes to care about the environment. The ESD-oriented didactic design that was developed in this study was applied for 26 prospective chemistry teacher students who had not yet studied the chemistry of rare earth elements. The research method used in this research is a didactic design research with a qualitative approach. There are three stages carried out in this study, first the prospective analysis stage, the learning stage of the developed design, and the retrospective analysis stage. The results of the analysis in this study indicate that the ESD-oriented didactic design developed can minimize some of the learning obstacles of students in understanding the aspects of NOS, this is supported by the achievement of scores that obtained by students. The results of the questionnaire on student responses to this didactic design showed that the average student response was very good (94%). Based on the results of this study, it is known that the ESD-oriented didactic design developed can be used as an alternative teaching material in rare earth element chemistry learning.

Keywords: Didactic Design, Education for sustainable development (ESD), Understanding, Nature Of Science (NOS), Chemistry of Rare Earth Elements.

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