REKONSTRUKSI BAHAN AJAR IPA BERMUATAN *NATURE OF SCIENCE* PADA TOPIK PARTIKEL MATERI DAN KARAKTERISTIK BAHAN

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ABSTRAK

Penelitian ini dilakukan untuk merekonstruksi bahan ajar partikel materi menggunakan konteks karakteristik bahan. Penelitian ini mengacu pada *Model of Educational Reconstruction* (MER). Tujuan penelitian ini adalah untuk memperoleh pre-konsepsi peserta didik dan perspektif saintis terhadap konsep partikel materi, karakteristik bahan, dan hubungan keduanya; mengetahui desain bahan ajar bermuatan *nature of science*; dan mengetahui penilaian ahli terhadap rancangan bahan ajar. Instrumen yang digunakan dalam penelitian ini yaitu pedoman wawancara, lembar analisis teks, lembar validasi indikator dan tujuan pembelajaran aspek kognitif dan afektif, lembar validasi analisis konsep, lembar validasi rancangan bahan ajar dan lembar uji keterbacaan. Data penelitian yang diperoleh berupa transkripsi wawancara 10 orang peserta didik kelas VIII, hasil analisis teks, hasil validasi indikator dan tujuan pembelajaran aspek kognitif dan afektif, hasil validasi analisis konsep, hasil validasi rancangan bahan ajar dan hasil uji keterbacaan. Hasil wawancara menunjukkan bahwa umumnya peserta didik telah mengetahui istilah yang berkaitan dengan partikel materi namun belum memahami konsepnya sehingga terdapat pre-konsepsi yang berbeda dengan perspektif saintis. Desain bahan ajar yang dihasilkan mempunyai karakteristik (a) dikembangkan berdasarkan refleksi pre-konsepsi peserta didik dan perspektif saintis; (b) disesuaikan dengan tingkat kognitif peserta didik (*accessible)*; (3) dikembangkan dengan menyisipkan aspek *nature of science* (NOS); (4) menggunakan urutan pengajaran dan pembelajaran Sains dan Teknologi Literasi (STL) dengan mengadopsi tahap pembelajaran *Chemie im Kontext* (ChiK). Hasil validasi bahan ajar memperoleh nilai CVI rata-rata 0,9935. Hal ini menunjukkan bahan ajar yang dihasilkan sudah layak digunakan untuk peserta didik SMP.

Kata Kunci: bahan ajar, karakteristik bahan, *Model of Educational Reconstruction (MER), Nature of Science (NOS),* dan partikel materi

RECONSTRUCTION OF SCIENCE TEACHING MATERIALS BASED ON NATURE OF SCIENCE IN THE TOPIC OF PARTICLES OF MATTER AND CHARACTERISTIC OF MATERIALS

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ABSTRACT

This study was conducted to reconstruct teaching material of particles of matter using context of characteristics of material. This study refers to the Model of Educational Reconstruction (MER). The purpose of this study was to obtain a pre-conception of learners and scientist's perspective to the concept of particles of matter, material characteristics, and relations between them; determine the design of teaching materials based on nature of science; and find out an expert assessment of the design of teaching materials. Instruments used in this research are interview, pieces of text analysis, validation sheet of indicators and learning objective of cognitive and affective aspects, validation sheet of the analysis of the concept, validation sheet of teaching materials design and legibility test sheet. The research data obtained in the form of the transcript of an interview 10 students of class VIII, text analysis results, the results of the validation indicators and the learning objectives of cognitive and affective aspects, validation results of the analysis of the concept, validation results of teaching materials design and test results readability. Interview results showed generally learners already know the terms related to particles of matter but has yet to understand the concept that there is a pre-conception that is different from the scientist's perspective. Design of teaching material produced is (a) developed based on reflection from pre-conception of learners and the perspective of scientists; (b) adjusted to the cognitive level of learners (accessible); (3) developed by inserting aspects of nature of science (NOS); (4) using a sequence of teaching and learning of Science and Technology Literacy (STL) by adopting a learning phase *Chemie im Kontext* (ChiK). The results of the validation of teaching materials to obtain an average value of CVI 0,9935. This suggests teaching materials produced it feasible used for junior high students.

Keywords: *characteristic of matter, Model of Educational Reconstruction (MER), the nature of science, the particles of matter, and teaching material*