

ABSTRACT

The Development of Senior High School Physics Learning Module Integrated by Global Warming Phenomena with Problem Based Learning and Scientific Approach to Improve Competence of Learners

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Module was a form of self-learning materials that full and systematic packed. It was contained within a set of learning experiences which was planned and designed to help students understanding the specific learning objectives. Module development was based on a concept deepening and widening for their external challenges, such as global warming. Appropriate learning to resolve the problems that associated with global warming was problem based learning model and scientific approach. The aim of this study was to develop physics learning modules integrated by global warming phenomena with problem based learning model with valid, practical, and effective criteria to improve students competence.

The type of this research was research and development using Dick and Carey model consisting of ten stages which were learning objectives identification, learning analysis, characteristics of learners and learning contexts analysis, formulating performance objectives, developing assessment instruments, developing learning strategies, developing and selecting teaching materials, designing and developing the formative evaluation, Instructional revision, then designing and developing a summative evaluation. The instrumen of this research consisted of analysis, validation, and practicalities sheets, essay tests, attitudes and skills observation sheets. Data were analyzed using descriptive percentages.

The results of this study showed that the develop physics learning modules integrated by global warming phenomena with problem based learning model based valid category (0.90), very practical according to the teachers (82.70%), very practical according to the students (88.17%), and effective in enhancing the competence of learners includes competency attitude (100%), the competence of knowledge (91.18%) and competence skills (88.24%).

ABSTRAK

Pengembangan Modul Pembelajaran Fisika SMA Terintegrasi Materi Fenomena Pemanasan Global Berbasis Model *Problem Based Learning* dan Pendekatan Saintifik untuk Meningkatkan Kompetensi Peserta Didik

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Modul merupakan salah satu bentuk bahan pembelajaran mandiri yang dikemas secara utuh dan sistematis, didalamnya memuat seperangkat pengalaman belajar yang terencana dan dirancang untuk membantu peserta didik menguasai tujuan pembelajaran yang spesifik. Pengembangan modul didasarkan pada pendalaman dan perluasan materi karena adanya tantangan eksternal, contohnya pemanasan global. Pembelajaran yang sesuai untuk menyelesaikan masalah-masalah yang berkaitan dengan pemanasan global salah satunya adalah *problem based learning* dan pendekatan saintifik. Penelitian ini bertujuan untuk mengembangkan modul pembelajaran Fisika terintegrasi materi fenomena pemanasan global menggunakan model *problem based learning* dengan pendekatan saintifik yang valid dan praktis serta efektif dalam meningkatkan kompetensi peserta didik.

Jenis penelitian adalah *research and development* menggunakan model Dick and Carey yang terdiri dari sepuluh tahap yaitu: identifikasi tujuan pembelajaran, analisis pembelajaran, analisis karakteristik peserta didik dan konteks, merumuskan tujuan kinerja, mengembangkan instrumen penilaian, mengembangkan strategi pembelajaran, mengembangkan dan memilih bahan ajar, merancang dan mengembangkan evaluasi formatif, revisi, dan merancang dan mengembangkan evaluasi sumatif. Instrumen penelitian terdiri dari lembar analisis berupa angket, lembar validasi, lembar praktikalitas, tes essay, lembar observasi sikap, dan lembar observasi keterampilan. Teknik analisis data menggunakan deskriptif persentase.

Hasil penelitian menunjukkan bahwa modul pembelajaran yang dikembangkan terintegrasi materi fenomena pemanasan global berbasis model *problem based learning* berkategori valid (0,90), sangat praktis menurut guru (82,70%), sangat praktis menurut peserta didik (88,17%), dan efektif dalam meningkatkan kompetensi peserta didik meliputi kompetensi sikap (100%), kompetensi pengetahuan (91,18%) dan kompetensi keterampilan (88,24%).