PENGEMBANGAN MODUL ELEKTRONIK IPA BERBASIS *DISCOVERY LEARNING* BERORIENTASI *HIGHER ORDER THINKING SKILLS* PADA MATERI SUHU, KALOR DAN PEMUAIAN UNTUK SISWA SMP

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ABSTRAK

Penelitian ini bertujuan untuk mendeskripsikan karakteristik, validitas, dan kepraktisan modul elektronik IPA berbasis *discovery learning* berorientasi HOTS pada materi suhu, kalor dan pemuaian untuk siswa SMP. Jenis penelitian ini adalah *Research and development (R&D)* dengan menggunakan model pengembangan 4-D yang terdiri tahapan *define, design, develop, dan disseminate.* Namun, pada penelitian ini hanya di batasi sampai tahap *develop*. Subjek penelitian ini yaitu 2 orang ahli S1 Pendidikan IPA sebagai validator, 4 guru IPA untuk uji kepraktisan, serta 15 orang siswa untuk uji kepraktisan. Metode dan instrumen yang digunakan dalam penelitian ini yaitu observasi, wawancara, dan angket/kuesioner. Teknik analisis data pada penelitian ini adalah teknik analisis deskriptif kualitatif dan deskriptif kuantitatif. Data yang diperoleh berupa data kualitatif dan kuantitatif. Hasil penelitian menunjukkan modul yang dikembangkan memiliki karakteristik meliputi, (1) modul elektronik IPA memuat aktivitas pembelajaran mengikuti sintaks *discovery learning* yang berfokus pada pengembangan keterampilan *higher order thinking skills (HOTS)*, (2) tampilan modul dibuat dalam bentuk *flipbook* (elektronik), (3) modul elektronik IPA termasuk dalam kategori validitas sangat tinggi dengan skor rata-rata sebesar 0,96, (4) modul elektronik IPA tergolong sangat praktis dengan skor rata-rata sebesar 4,55 dari penilaian guru dan skor rata-rata sebesar 4,42 dari siswa. Bedasarkan data hasil penelitian modul elektronik yang dikembangkan telah memenuhi kualitas sangat valid dan sangat praktis sehingga layak untuk diujikan ke tahap selanjutnya yaitu uji keefektifan produk**.**

Kata Kunci: Modul elektronik IPA, *discovery learning*, *Higher Order Thinking Skill (HOTS)*

DEVELOPMENT OF DISCOVERY LEARNING-BASED ELECTRONIC SCIENCE MODULE ORIENTED TO HIGHER ORDER THINKING SKILLS ON TEMPERATURE, HEAT AND EXPANSION MATERIALS FOR JUNIOR HIGH SCHOOL STUDENTS

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ABSTRACT

This study aims to describe the characteristics, validity, and practicality of an electronic science module based on discovery learning oriented towards higher-order thinking skills (HOTS) on the subject matter of temperature, heat, and expansion for junior high school students. This study is a research and development (R&D) study using a 4-D development model consisting of the stages of define, design, develop, and disseminate. However, this study is limited to the develop stage. The research subjects were two experts with bachelor's degrees in science education as validators, four science teachers for practicality testing, and 15 students for practicality testing. The methods and instruments used in this study were observation, interviews, and questionnaires. The data analysis techniques used in this study were qualitative descriptive analysis and quantitative descriptive analysis. The data obtained were qualitative and quantitative. The results of the study showed that the developed module had the following characteristics: (1) the electronic science module contained learning activities following the discovery learning syntax that focused on the development of higher order thinking skills (HOTS), (2) the module display was made in the form of a flipbook (electronic), (3) the electronic science module falls into the category of very high validity with an average score of 0.96, (4) the electronic science module is very practical with an average score of 4.55 from teacher evaluations and an average score of 4.42 from students. Based on the research data, the developed electronic module has met the criteria for very high validity and practicality, making it suitable for testing in the next phase, which is the product effectiveness test.

Keywords: *Development, Science e-module, discovery learning, Higher Order Thinking Skill (HOTS)*