

**PENGEMBANGAN MODUL INKUIRI TERBIMBING BERBASIS
PEMBELAJARAN MENDALAM PADA MATERI PERUBAHAN
LINGKUNGAN SEBAGAI PENGUATAN SDGs UNTUK SISWA KELAS X SMA**

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ABSTRAK

Keterbatasan bahan ajar yang memediasi penyelidikan, pembelajaran mendalam, dan penguatan *Sustainable Development Goals* (SDGs) menjadi kendala saat belajar materi perubahan lingkungan. Pengkajian ini berusaha menghasilkan rancang bangun serta merumuskan validitas juga kepraktisan modul inkuiri terbimbing berbasis pembelajaran mendalam pada materi perubahan lingkungan menjadi penguatan SDGs untuk peserta didik kelas X SMA. Pengkajian ini ialah pengkajian dan pengoptimalan dengan mengadaptasi model ADDIE. Data diakumulasi dari wawancara, observasi, lembar validasi, juga angket respons. Validasi produk melibatkan dua ahli materi dan dua ahli media, sedangkan uji kepraktisan melibatkan tiga guru Biologi dan 32 peserta didik kelas X Fase E SMA Negeri 3 Singaraja. Data validitas dirumuskan mempergunakan formula *Gregory*, sedangkan data kepraktisan dirumuskan mempergunakan persentase. Produk yang dihasilkan berupa modul cetak dengan empat kegiatan pembelajaran yang mengintegrasikan sintaks inkuiri terbimbing, tahapan mengerti, memakai, juga merefleksikan, serta penguatan SDGs 12, 13, dan 15. Perolehan pengkajian menjabarkan jika validitas materi memperoleh koefisien 0,71 berkategori valid dan validitas media 1,00 berkategori sangat valid. Kepraktisan modul berlandaskan respons guru menggapai 93,82% dan respons peserta didik 90,99%, keduanya berkategori sangat praktis. Hingga, modul yang dimaksimalkan mencukupi syarat-syarat valid juga sangat praktis sebagai bahan ajar pendukung belajar Biologi kelas X SMA.

Kata kunci: inkuiri terbimbing, modul pembelajaran, pembelajaran mendalam, perubahan lingkungan, SDGs

**DEVELOPMENT OF A GUIDED INQUIRY MODULE BASED ON DEEP
LEARNING ON ENVIRONMENTAL CHANGE MATERIAL AS AN SDGs
ENHANCEMENT FOR GRADE X HIGH SCHOOL STUDENTS**

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ABSTRACT

Learning environmental change materials has grown difficult due to the scarcity of teaching resources that support inquiry activities, deep learning, and the integration of Sustainable Development Goals (SDGs). In order to improve the SDGs for Grade X high school students, this study sought to explain the design and development process as well as assess the validity and usefulness of a guided inquiry module based on deep learning on environmental change content. By modifying the ADDIE paradigm, this study used a research and development approach. Validation sheets, questionnaires, observations, and interviews were used to gather data. Three biology professors and thirty-two Grade X Phase E students from SMA Negeri 3 Singaraja participated in the practicality test, while two material experts and two media experts validated the product. Validity data were analyzed using the Gregory formula, while practicality data were analyzed using percentage analysis.

The final result was a printed module with four learning exercises that integrated SDGs 12, 13, and 15 with guided inquiry syntax and the deep learning stages of understanding, applying, and reflecting. According to the findings, the media validity coefficient was 1.00, classified as extremely valid, while the material validity value was 0.71, classified as valid. Both teachers and students scored 93.82% and 90.99%, respectively, on the practicality exam, which classified them as highly practical. As a result, the created module satisfies the requirements of being both valid and extremely useful as a supplementary biology learning resource for students in Grade X.

Keywords: *guided inquiry, learning module, deep learning, environmental change, SDGs*