

ABSTRACT

Ladia Lestari, 2019. "Development of Physics SMA/MA E-Modules Based on SETS (Science, Environment, Technology, and Society) Integrated Flood Disaster Materials to Develop Disaster Mitigation Competencies". Thesis. Master Program in Physics Education, Faculty of Mathematics and Natural Sciences, Universitas Negeri Padang.

The results of the needs analysis and discussion about learning in school have not provided awareness, understanding, and the ability of students to control flood mitigation. This is due to the lack of available learning resources that facilitate these activities, so that students lack the competency regarding flood disaster mitigation. As needed. The use of technology is an effort that can be done to facilitate learning activities about mitigation. Among the learning resources that can be developed are e-modules. The purpose of this study in general is to produce an e-module of SMA / MA Physics based on the SETS model integrated with flood disaster material to improve disaster mitigation competencies with valid, practical, and effective criteria.

This type of research is Design Research. Product development refers to the Plomp stage, namely Preliminary Research, Development or Prototyping Phase and Assessment Phase. Research data is graduate competency data, material analysis, learning activities, preliminary knowledge, students, regional potential, validity, practicality, and effectiveness. The research instruments were questionnaires, analysis sheets, validation sheets, practicality sheets, attitudes and skills observation sheets, students' self-assessment sheets, and objective questions. Data collection techniques are interviews, observation, questionnaires, and study documentation. Data analysis technique is validity data analyzed with Aiken's V formula. Practicality data is analyzed with a Likert scale, and effectiveness data is analyzed with descriptive analysis.

The results of the study are the e-module of SMA / MA Physics based on the SETS model integrated with flood disaster material to improve disaster mitigation competencies with valid, practical, and effective criteria. The implication of the study shows that the high school / MA physics e-module based on the integrated SETS model of flood disaster material is worth considering by the teacher to be used as teaching material in learning physics. The conclusion of the study is that the high school / MA physics e-module based on the SETS model integrates flood disaster material into valid, very practical, and effective criteria.

Keyword: Physics *e-module*, flood disaster, SETS (Science, Environment, Technology, and Society), Disaster Mitigation Competencies.

ABSTRAK

Ladia Lestari, 2019. “Pengembangan *E-modul* Fisika SMA/MA Berbasis SETS (*Science, Environment, Technology, and Society*) Terintegrasi Materi Bencana Banjir untuk Meningkatkan Kompetensi Mitigasi Bencana”. Tesis. Program Studi Magister Pendidikan Fisika Fakultas Matematika dan Ilmu Pengetahuan Alam Universitas Negeri Padang.

Hasil analisis kebutuhan dan konteks menunjukkan bahwa pembelajaran disekolah belum memberikan penyadaran, pemahaman, dan kemampuan peserta didik dalam bertindak tentang mitigasi bencana banjir. Hal ini disebabkan kurang tersedianya sumber belajar yang memfasilitasi kegiatan tersebut, sehingga peserta didik kurang memiliki kompetensi tentang mitigasi bencana banjir. Pemanfaatan teknologi merupakan suatu upaya yang dapat dilakukan untuk memfasilitasi kegiatan pembelajaran tentang mitigasi. Diantaranya sumber belajar yang bisa dikembangkan adalah *e-modul*. Tujuan penelitian ini secara umum untuk menghasilkan *e-modul* Fisika SMA/MA berbasis model SETS terintegrasi materi bencana banjir untuk meningkatkan kompetensi mitigasi bencana dengan kriteria valid, praktis, dan efektif.

Jenis Penelitian ialah *Design Research*. Pengembangan produk mengacu pada tahap *Plomp*, yaitu analisis pendahuluan, tahap pengembangan dan tahap penilaian. Data penelitian ialah data kompetensi lulusan, analisis materi, kegiatan pembelajaran, pengetahuan awal, peserta didik, potensi daerah, validitas, praktikalitas, dan efektivitas. Instrumen penelitian ialah kuesioner, lembar analisis, lembar validasi, lembar praktikalitas, lembar observasi sikap dan keterampilan, lembar penilaian diri peserta didik, dan soal objektif. Teknik pengumpulan data ialah wawancara, observasi, kuesioner, dan studi dokumentasi. Teknik analisis data ialah data validitas dianalisis dengan formula aiken's V. Data praktikalitas dianalisis dengan skala likert, dan data efektivitas dianalisis dengan analisis deskriptif.

Hasil penelitian ialah *e-modul* Fisika SMA/MA berbasis model SETS terintegrasi materi bencana banjir untuk meningkatkan kompetensi mitigasi bencana dengan kriteria valid, praktis, dan efektif. Implikasi penelitian menunjukkan *e-modul* Fisika SMA/MA berbasis model SETS terintegrasi materi bencana banjir layak dipertimbangkan oleh guru untuk dijadikan bahan ajar dalam pembelajaran Fisika. Kesimpulan penelitian adalah *e-modul* Fisika SMA/MA berbasis model SETS terintegrasi materi bencana banjir termasuk ke dalam kriteria valid, sangat praktis, dan efektif.

Kata Kunci : *E-modul* Fisika, bencana banjir, SETS (*Science, Environment, Technology, and Society*), kompetensi mitigasi bencana.