

ABSTRAK

**PENGEMBANGAN E-UKBM BERBASIS PENDEKATAN STEM
DENGAN MODEL *PROBLEM BASED LEARNING*
PADA MATERI VIRUS KELAS X SMA**

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Kemajuan bidang ilmu pengetahuan dan teknologi (IPTEK) memungkinkan terlaksananya pembelajaran jarak jauh (PJJ) atau pembelajaran daring (dalam jaringan), terutama pada masa pembatasan kegiatan di ruang publik saat pandemi Covid-19. Berdasarkan wawancara analisis kebutuhan yang dilakukan di 5 SMA di Kota Maumere, dijumpai beberapa masalah terkait pembelajaran daring tersebut. Permasalahan utama yang dijumpai adalah kurangnya fasilitas penunjang kegiatan belajar mandiri peserta didik di luar jam pembelajaran dan kesulitan guru dalam memberikan pembelajaran yang kontekstual pada materi yang sifatnya cukup abstrak. Penelitian ini bertujuan mengembangkan desain media pembelajaran e-UKBM berbasis pendekatan STEM dengan model *Problem Based Learning* pada materi Virus untuk kelas X SMA dan menilai kelayakan desain tersebut dari aspek materi dan media pembelajaran sebagai solusi dari permasalahan utama yang dijumpai.

Penelitian ini menggunakan metode penelitian dan pengembangan (R&D) dengan model ADDIE (*Analysis, Design, Development, Implementation, Evaluation*) yang dibatasi sampai tahap *Development*. Penelitian diawali dengan wawancara analisis kebutuhan di 5 SMA di Kota Maumere, dilanjutkan dengan tahap desain, pengembangan, serta validasi dan revisi produk berupa aplikasi e-UKBM Virus. Desain aplikasi tersebut terdiri atas menu Tentang Aplikasi, Identitas UKBM, Kegiatan Belajar, Refleksi, dan Profil Pengembang. Kelayakan aplikasi dinilai dari aspek materi dan media oleh validator ahli dan guru sebagai praktisi. Hasil olah data menunjukkan desain aplikasi e-UKBM Virus “Sangat Layak” dari segi materi dengan rata-rata skor 86,66% dan “Sangat Layak” dari segi media dengan rata-rata skor 83,33%. Dengan demikian, desain aplikasi e-UKBM Virus dinyatakan layak dari segi materi maupun media pembelajaran untuk mengatasi permasalahan utama yang dijumpai saat wawancara analisis kebutuhan.

Kata kunci: *Research and Development* (R&D), e-UKBM, pendekatan STEM, model *Problem Based Learning*, Virus

ABSTRACT**DEVELOPMENT OF E-UNIT FOR SELF-LEARNING ACTIVITIES (UKBM) BASED ON A STEM APPROACH WITH PROBLEM BASED LEARNING MODEL ON VIRUS MATERIALS FOR 10th GRADE**

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Advances in science and technology have made it possible to carry out distance learning or online learning, especially during the period of restrictions on activities in public spaces during the Covid-19 pandemic. Based on needs analysis interviews conducted in 5 high schools in Maumere, several problems related to online learning were found. The main problems encountered were related to the lack of supporting facilities for independent learning activities of students outside of learning hours and the difficulty of teachers in providing contextual learning on material that was quite abstract. This study aims to develop an e-UKBM learning media design based on the STEM approach with a Problem Based Learning model on Virus material for 10th grade and assess the feasibility of the design from the aspect of learning materials and media, as a solution to the main problems encountered.

This study used research and development (R&D) methods with the ADDIE model (Analysis, Design, Development, Implementation, Evaluation) which was limited to the Development stage. The study began with needs analysis interviews in 5 high schools in Maumere, followed by the design, development, and product validation and revision stages in the form of the e-UKBM Virus application. The application design consists of the About Application menu, UKBM Identity, Learning Activities, Reflections, and Developer Profiles. The feasibility of the application was assessed from the material and media aspects by expert validators and teachers as practitioners. The results of the data processing showed that the e-UKBM Virus application design was "Very Eligible" in terms of material with an average score of 86.66% and "Very Eligible" in terms of media with an average score of 83.33%. Thus, the design of the e-UKBM Virus application is declared feasible in terms of materials and learning media to overcome the main problems encountered during the needs analysis interview.

Keywords: *Research and Development (R&D), e-Unit for Self-Learning Activities (UKBM), STEM approach, Problem Based Learning model, Virus*