

ABSTRAK

PENGEMBANGAN *E-MODULE* BERBASIS ANDROID PADA MATERI PROTISTA KELAS X

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Berdasarkan analisis kebutuhan yang dilakukan di lima sekolah terdapat kendala yang menghambat proses pembelajaran berlangsung. Kendala tersebut meliputi minat belajar yang rendah, jaringan tidak stabil, dan keterbatasan pengembangan media pembelajaran pada materi yang sulit seperti materi protista. Salah satu upaya untuk mengatasi hal tersebut dengan mengembangkan *e-module* berbasis aplikasi android dengan bahasa pemrograman kotlin berbantuan canva. *E-module* dapat digunakan secara *offline* dan *online* pada menu evaluasi pembelajaran. Tujuan penelitian pengembangan ini untuk mengembangkan dan mengetahui kelayakan dari *e-module*.

Jenis penelitian yang digunakan ialah *Research and Development* menurut Born and Gall dalam Sugiyono. Penelitian ini hanya sampai tahap kelima. Tahap tersebut terdiri dari potensi, kebutuhan, dan pengumpulan data 5 SMA di Yogyakarta dilanjutkan mendesain produk dan validasi yang dilakukan oleh satu dosen ahli media, satu dosen ahli materi, dan dua guru biologi SMA kelas X sebagai ahli media dan materi. Selanjutnya dilakukan revisi produk dari masukan validator.

Hasil penelitian berupa produk *E-module* berbasis *android* dengan bantuan bahasa pemrograman kotlin dan Canva menghasilkan file aplikasi berukuran 49 MB yang dapat diunduh pada *smartphone android* minimal versi 5.0 (lollipop) bila di instal di versi bawah akan terjadi kegagalan. Hasil validasi aspek materi memperoleh persentase sebesar 86% dan aspek media materi memperoleh persentase sebesar 93,7% dan masuk dalam kriteria “sangat layak”. Berdasarkan kriteria tersebut *E-module* ini layak untuk diujicobakan secara terbatas setelah perbaikan sesuai saran validator.

Kata kunci: *E-module* berbasis *Android*, Media Pembelajaran, Protista, *Research & Development*

ABSTRACT**ANDROID-BASED E-MODULE DEVELOPMENT ON CLASS X PROTISTS MATERIAL**

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Based on the needs analysis carried out in five schools, there were obstacles that hindered the learning process from taking place. These obstacles include low interest in learning, unstable networks, and limitations in developing learning media on difficult material such as protist material. One of the efforts to overcome this is by developing an Android application-based e-module with the Kotlin programming language assisted by Canva. E-module can be used offline and online on the learning evaluation menu. The purpose of this development research is to develop and determine the feasibility of the e-module.

The type of research used is Research and Development according to Born and Gall in Sugiyono. This research is only up to the fifth stage. This stage consisted of the potential, needs, and data collection of 5 high schools in Yogyakarta followed by product design and validation which was carried out by one media expert lecturer, one material expert lecturer, and two senior high school biology teachers for class X as media and material experts. Furthermore, product revisions were carried out from validator input.

The results of the research are in the form of an Android-based E-module product with the help of the Kotlin and Canva programming languages to produce an application file measuring 49 MB which can be downloaded on an Android smartphone of at least version 5.0 (Lollipop). If installed on a lower version, failure will occur. The results of validating the material aspect obtained a percentage of 86% and the material media aspect obtained a percentage of 93.7% and was included in the "very feasible" criteria. Based on these criteria, this E-module is suitable for limited trials after improvements according to the validator's suggestions.

Keywords: *Learning Media, E-modules based on Android, Protist material, Research & Development*