PENGEMBANGAN PROGRAM PERKULIAHAN BIOLOGI KONSERVASI BERBASIS *CITIZEN SCIENCE PROJECT* UNTUK MENINGKATKAN LITERASI BIODIVERSITAS DAN KETERAMPILAN MENELITI MAHASISWA CALON GURU BIOLOGI

DISERTASI

Diajukan untuk Memenuhi Sebagian dari Syarat untuk Memperoleh Gelar Doktor
Pendidikan Ilmu Pengetahuan Alam

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PERNYATAAN KEASLIAN DISERTASI

Dengan ini saya menyatakan bahwa Disertasi dengan judul "**Pengembangan Program Perkuliahan Biologi Konservasi Berbasis *Citizen Science Project* Untuk Meningkatkan Literasi Biodiversitas dan Keterampilan Meneliti Mahasiswa Calon Guru Biologi**" beserta seluruh isinya adalah benar-benar karya saya sendiri, Saya tidak melakukan penjiplakan atau pengutipan dengan cara-cara yang tidak sesuai dengan etika ilmu yang berlaku dalam masyarakat keilmuan. Atas pernyataan ini, saya siap menanggung resiko/sanksi yang dijatuhkan kepada saya apabila dikemudian hari ditemukan adanya pelanggaran etika keilmuan dalam karya saya ini, atau ada klaim dari pihak lain terhadap keaslian karya saya ini.

Bandung, 25 Juli 2022
Yang membuat pernyataan

Ipin Aripin

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Citizen Science merupakan *trend* baru dalam kegiatan riset. Ancaman *loss biodiversity* yang semakin nyata dihadapi umat manusia sehingga memerlukan tindakan pencegahan yang *extra ordinary* dengan melibatkan berbagai *stakeholder* termasuk masyarakat. Upaya membangun kesadaran terhadap pentingnya biodiversitas dapat dikembangkan melalui sektor pendidikan. Salah satu upaya membangun kesadaran terhadap biodiversitas pada jenjang pendidikan tinggi adalah melalui pengembangan program perkuliahan yang dapat membekali literasi biodiversitas salah satunya melalui mata kuliah biologi konservasi.

Mata kuliah biologi konservasi sangat cocok untuk membekali literasi biodiversitas pada mahasiswa karena mata kuliah ini menyajikan konsep biologi terkait keanekaragaman hayati dan konservasinya. Selain itu melalui kegiatan *Citizen Science Project* diharapkan membekali keterampilan meneliti mahasiswa sehingga akan manghasilkan lulusan yang *literate* dan memiliki *research skills* yang mumpuni. Dengan kemampuan tersebut mahasiswa diharapkan dapat mentransformasikan pengetahuannya pada masyarakat luas yang pada akhirnya akan membentuk kesadaran secara kolektif tentang pentingnya kelestarian biodiversitas untuk pembangunan berkelanjutan.

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ABSTRAK

PENGEMBANGAN PROGRAM PERKULIAHAN BIOLOGI KONSERVASI BERBASIS *CITIZEN SCIENCE PROJECT* UNTUK MENINGKATKAN LITERASI BIODIVERSITAS DAN KETERAMPILAN MENELITI MAHASISWA CALON GURU BIOLOGI

Studi tentang pengembangan program perkuliahan biologi konservasi berbasis *Citizen Science Project* dilaksanakan untuk meningkatkan literasi biodiversitas dan keterampilan meneliti mahasiswa calon guru biologi. Pengembangan program perkuliahan menggunakan *Design and Development Research (DDR)* yang terdiri atas tahapan identifikasi masalah, menentukan tujuan, mendesain pengembangan program, menguji program, evaluasi hasil pengujian, diseminasi dan publikasi. Penelitian ini melibatkan (n= 63) mahasiswa calon guru biologi pada sebuah LPTK di Cirebon – Jawa Barat. Subjek penelitian dipilah menjadi dua grup yakni kelas *Hybrid Citizen Science Project*/HCSP (n=31) dan kelas *Online Citizen Science Project*/OCSP (n=32). Data penelitian tentang literasi biodiversitas dan keterampilan meneliti dijaring menggunakan instrumen tes (pilihan ganda dan esai) dan non tes (lembar angket, pedoman wawancara, rancangan program riset, laporan riset, rancangan program konservasi biodiversitas, *log book*, presentasi hasil riset, dan artikel hasil riset). Analisis data dilakukan secara kualitatif dan kuantitatif dengan bantuan SPSS 25. Hasil penelitian menunjukkan bahwa: 1) program perkuliahan biologi konservasi berbasis CSP yang telah dikembangkan memiliki karakteristik: berorientasi pada pembekalan literasi biodiversitas dan keterampilan meneliti, menggunakan tipologi *hybrid,* mempromosikan pendidikan biodiversitas, penggunaan ICT dalam pengumpulan data penelitian biodiversitas melalui aplikasi *iNaturalist*, dan dilaksanakan pada jenjang pendidikan formal, 2) terdapat peningkatan literasi biodiversitas mahasiswa calon guru biologi dengan kategori sedang; 3) program perkuliahan biologi konservasi berbasis CSP berkontribusi terhadap keterampilan meneliti dengan kategori sedang, dan 4) mahasiswa merespon positif dan antusias terhadap program perkuliahan biologi konservasi berbasis CSP.

Kata kunci: Perkuliahan, biologi konservasi, *citizen science project*, literasi biodiversitas, keterampilan meneliti

ABSTRACT

DEVELOPING BIOLOGY CONSERVATION LEARNING PROGRAM BASED ON CITIZEN SCIENCE PROJECT TO ENHANCE PRESERVICE BIOLOGY TEACHERS' BIODIVERSITY LITERACY AND RESEARCH SKILLS

A study about biology conservation development program citizen science project based, was held to enhance biodiversity literacy and reseach skills. The instruction development used *Design and Development Research (DDR)* which consisted of identifying problem, selecting a purpose, designing the program, testing the program, test evaluation, presentation and publication. The sample of this research was a sixty three students of LPTK in Cirebon west Java. The samples of this research were break down into two groups HCSP Class (n=31) and OCSP class (n=32). The technique of collecting data used test (multiple choice and essay), and non test such as questionnaire, interview, planning research program, reseach report, biodiversity design, log book, research result presentation, and research article journal. The data was analized qualitatively and quantitative through SPSS 25. The result shows that 1) The CSP-based biology conservation learning program that has been developed has characteristics: oriented to providing biodiversity literacy and research skills, using a hybrid typology, promote biodiversity education, the use of ICT in the collection of biodiversity research data through the iNaturalist application, and implemented at the level of formal education. 2) There were improvement of prospective biology teacher biodiversity literacy in medium category. 3) CSP-based conseravtion biology learning was contributing to the research skill in medium category, and 4) students responded positively and enthusiastically to the CSP-based conservation biology learning program.

Keywords: Learning, biological conservation, citizen science project, biodiversity literacy, research skills

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