

**PENGEMBANGAN ENSIKLOPEDIA DIGITAL MAMALIA BERBASIS *CITIZEN
SCIENCE PROJECT* (CSP) UNTUK MENINGKATKAN LITERASI SPESIES,
MEMFASILITASI KETERAMPILAN KOMUNIKASI DAN KOLABORASI
MAHASISWA CALON GURU BIOLOGI**



DISERTASI

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**Pengembangan Ensiklopedia Digital Mamalia Berbasis *Citizen Science Project* (CSP) untuk Meningkatkan Literasi Spesies,
Memfasilitasi Keterampilan Komunikasi dan Kolaborasi
Mahasiswa Calon Guru Biologi**

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ABSTRAK

Penelitian ini bertujuan untuk menghasilkan ensiklopedia digital mamalia berbasis *Citizen Science Project* (CSP) untuk meningkatkan literasi spesies, memfasilitasi keterampilan komunikasi dan kolaborasi. Penelitian ini menggunakan *mixed methods* dengan *the exploratory sequential design* yang diimplementasikan di salah satu perguruan tinggi swasta di Bandung. Mahasiswa yang terlibat sebagai subjek penelitian adalah mahasiswa pendidikan Biologi sebanyak 30 mahasiswa. Hasil penelitian menunjukkan bahwa: 1) Karakteristik ensiklopedia digital mamalia berbasis CSP memungkinkan mahasiswa berkontribusi secara langsung dalam pengumpulan dan pelaporan data spesies mamalia, berbasis *web* dan *mobile*, dikembangkan menggunakan bahasa pemrograman PHP dan basis data MySQL; 2) Ensiklopedia digital mamalia berbasis CSP meningkatkan literasi spesies, dengan nilai *N-Gain* yang diperoleh berada dalam kategori sedang; 3) Ensiklopedia digital mamalia berbasis CSP mampu memfasilitasi keterampilan komunikasi baik lisan maupun tulisan melalui kegiatan pengamatan dan diskusi; 4) Ensiklopedia digital mamalia berbasis CSP mampu memfasilitasi keterampilan kolaborasi, dengan hasil analisis menunjukkan bahwa 90% mahasiswa memiliki keterampilan kolaborasi yang kuat dan 10% menunjukkan keterampilan kolaborasi yang berkembang; 5) Respons positif mahasiswa terhadap ensiklopedia digital mamalia berbasis CSP yang mencakup aspek kebahasaan, penampilan, teknis, dan materi. Hasil tersebut menunjukkan bahwa ensiklopedia digital mamalia berbasis CSP memiliki potensi baik untuk digunakan dalam perkuliahan zoologi vertebrata. Selain itu, untuk penelitian lebih lanjut dapat dikembangkan ke kelas vertebrata lain dengan tetap mendukung keterampilan komunikasi dan kolaborasi mahasiswa, serta memanfaatkan teknologi untuk pembelajaran yang fleksibel dan partisipatif.

Kata kunci: *citizen science project*, ensiklopedia digital, keterampilan komunikasi, keterampilan kolaborasi, literasi spesies

**Developing a Digital Encyclopedia of Mammals Based on a Citizen
Science Project (CSP) to Enhance Species Literacy,
Facilitate Communication and Collaboration Skills
for Prospective Biology Teachers**

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ABSTRACT

This study aims to produce a digital encyclopedia of mammals based on Citizen Science Project (CSP) to improve species literacy, facilitate communication and collaboration skills. This study uses mixed methods with the exploratory sequential design implemented in one of the private universities in Bandung. Students involved as research subjects were 30 Biology education students. The results of the study indicate that: 1) The characteristics of the CSP-based digital encyclopedia of mammals allow students to contribute directly in collecting and reporting mammal species data, web-based and mobile, developed using the PHP programming language and MySQL database; 2) The CSP-based digital encyclopedia of mammals improves species literacy, with the N-Gain value obtained being in the medium category; 3) The CSP-based digital encyclopedia of mammals is able to facilitate both oral and written communication skills through observation and discussion activities; 4) The CSP-based digital encyclopedia of mammals is able to facilitate collaboration skills, with the analysis results showing that 90% of students have strong collaboration skills and 10% show developing collaboration skills; 5) Students responded positively to the CSP-based digital mammal encyclopedia, which covers linguistic, presentation, technical, and material aspects. These results indicate that the CSP-based digital mammal encyclopedia has good potential for use in vertebrate zoology lectures. Furthermore, further research can be developed into other vertebrate classes while still supporting students' communication and collaboration skills, and utilizing technology for flexible and participatory learning.

Keywords: citizen science project, digital encyclopedia, communication skills, collaboration skills, species literacy

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