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Enhancing environmental awareness through education on recognizing and conserving flagship and endemic species of Bangka Island in Riding Panjang Village, Bangka Regency

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Abstract
Environmental awareness is essential for the conservation of biodiversity, particularly in regions rich in endemic and flagship species, such as Bangka Island. The Community Service (CS) program aimed to enhance environmental awareness among young adults in Riding Panjang Village, Belinyu District, Bangka Regency, Bangka Belitung Islands Province, through education on recognizing and conserving Bangka Island's flagship and endemic species. This CS program, conducted on August 10th, 2024, included 25 participants aged 18-29 and involved three phases: pretest, education, and posttest. The pretest results revealed that participants had limited prior knowledge, with an average score of 56 points. The educational phase utilized interactive presentations to increase understanding of the species' ecological roles and conservation needs. Following the education, the posttest showed a significant improvement in knowledge, with an average score of 86 points, marking a 30-point increase. These findings demonstrate the effectiveness of structured educational programs in raising awareness and engagement in biodiversity conservation. The results underscore the importance of conservation education, particularly for emerging adults who are more open to new ideas and prepared to adopt social and environmental responsibilities. This CS program successfully increased participants' understanding and motivation to support conservation efforts for Bangka Island's unique species.

Keywords: *Environmental awareness; Bangka islands flagship and endemic species; Education*

Meningkatkan kepedulian lingkungan melalui edukasi mengenali dan melestarikan spesies flagship dan endemik Pulau Bangka di Desa Riding Panjang, Kabupaten Bangka

Abstrak
Kesadaran lingkungan sangat penting untuk konservasi keanekaragaman hayati, terutama di wilayah yang kaya akan spesies flagship dan endemik, seperti Pulau Bangka. Program Pengabdian kepada Masyarakat (PkM) ini bertujuan untuk meningkatkan kesadaran lingkungan di kalangan pemuda di Desa Riding Panjang, Kecamatan Belinyu, Kabupaten Bangka, Provinsi Kepulauan Bangka Belitung, melalui edukasi mengenai pengenalan dan pelestarian spesies flagship dan endemik Pulau Bangka. Program PkM ini dilaksanakan pada 10 Agustus 2024, dengan melibatkan 25 peserta berusia 18-29 tahun dan terdiri dari tiga tahap: *pre-test*, edukasi, dan *post-test*. Hasil *pre-test* menunjukkan bahwa peserta memiliki pengetahuan awal yang terbatas, dengan skor rerata 56 poin. Tahap edukasi menggunakan presentasi interaktif untuk meningkatkan pemahaman mengenai peran ekologi dan kebutuhan konservasi spesies tersebut. Setelah edukasi, hasil *post-test* menunjukkan peningkatan pengetahuan yang signifikan, dengan skor rerata 86 poin, meningkat sebesar 30 poin. Temuan ini menunjukkan efektivitas program edukasi

yang terstruktur dalam meningkatkan kesadaran dan keterlibatan dalam konservasi keanekaragaman hayati. Hasil ini menekankan pentingnya pendidikan konservasi, terutama bagi individu di masa dewasa awal, yang lebih terbuka terhadap ide-ide baru dan siap untuk mengadopsi tanggung jawab sosial dan lingkungan. Program PkM ini berhasil meningkatkan pemahaman dan motivasi peserta untuk mendukung upaya konservasi spesies unik Pulau Bangka.

Kata Kunci: Kesadaran lingkungan; Spesies flagship dan endemik Pulau Bangka; Edukasi

1. Introduction

Environmental awareness is a critical pillar in sustainable nature conservation efforts, particularly in regions rich in biodiversity (Samedi, 2015; Syafutra, 2024). As an archipelagic country with extraordinary flora and fauna, Indonesia bears a significant responsibility to preserve and protect various flagship and endemic species found across its islands (Setiawan, 2022; Syafutra, 2024; Syafutra, Ngazizah, et al., 2024), including Bangka Island. This island is known not only for its natural wealth but also for its flagship and endemic species, which play a crucial role in the ecosystem and hold high conservation value (Syafutra et al., 2022; Syafutra, Dalimunthe, et al., 2024).

Flagship species are those chosen to serve as symbols or icons of conservation efforts to protect the environment and biodiversity. These species often possess appealing characteristics, such as large size, unique shapes or colors, and ecological or cultural significance (Mustari, 2020). The presence of flagship species frequently drives conservation campaigns, as they help raise public awareness and garner broader support for environmental protection (Mangunjaya et al., 2017). On the other hand, endemic species are found exclusively within specific geographic areas and nowhere else in the world. These species are particularly vulnerable to environmental changes, habitat degradation, and human activities (Mustari, 2020). Therefore, the conservation of endemic species requires special attention and serious efforts, especially in regions experiencing high ecological pressure (Mangunjaya et al., 2017), such as Bangka Island.

Riding Panjang Village, located in Belinyu District, Bangka Regency, is one of the villages situated within this rich biodiversity. With its supportive geographic conditions, the village serves as a habitat for various flagship and endemic species of Bangka Island. However, like many other regions, Riding Panjang Village faces significant challenges in environmental conservation, particularly concerning the local community's awareness and knowledge of the importance of protecting these species. The level of environmental awareness and knowledge, especially among the younger generation, still needs improvement. This situation may be attributed to limited access to information, the lack of sustainable educational programs, and the influence of socioeconomic changes that have shifted the community's focus away from environmental issues.

The Community Service (CS) program aims to enhance the awareness and knowledge of the younger generation in Riding Panjang Village about the flagship and endemic species of Bangka Island through a structured and sustainable educational program. Education is one of the most effective strategies for building environmental awareness, as it enables individuals to understand the importance of nature conservation and how they can contribute to such efforts. The education provided in this CS program is designed not only to offer theoretical knowledge but also to actively engage participants

in various activities that encourage them to better recognize, appreciate, and protect their environment.

2. Method

The CS program was conducted on August 10th, 2024, in Kelapo Hamlet (GPS coordinates: 1°44'15.7" S 105°48'01.0" E) (Figure 1), Riding Panjang Village, Belinyu District, Bangka Regency, Bangka Belitung Islands Province. This CS program was integrated with the Student Community Service/Kuliah Kerja Nyata organized by Universitas Muhammadiyah Bangka Belitung (KKN Unmuh Babel), from July 11th, 2024 to August 23rd, 2024. The participants in this CS program were aged 18-29 years, totaling 25 people (18 males and 7 females).

Figure 1. Sukma Traditional House, the location of the CS program

This CS program was carried out in three phases: pretest, education, and posttest. The first phase was the pretest. Participants were given a multiple-choice test in this phase to assess their initial knowledge of Bangka Island's flagship and endemic species. The test consisted of 10 questions (each question worth 10 points, with a total score of 100 points) covering the identification of flagship and endemic species of Bangka Island and the threats they face. The pretest was essential to establish a baseline of the participants' knowledge before receiving educational content.

The second phase involved education through an interactive and communicative presentation. During this phase, participants were provided with information about Bangka Island's flagship and endemic species. The presentation utilized PowerPoint (PPT) slides, accompanied by engaging visuals and interesting facts to make the session more appealing and easier to understand. Additionally, an interactive Q&A session was held to keep participants engaged and ensure material comprehension.

The third phase was the posttest. Similar to the pretest, participants were given a multiple-choice test to assess the increase in their knowledge after the educational session. The posttest aimed to evaluate the effectiveness of the education provided. The 10 questions (each question worth 10 points, with a total score of 100 points) in the posttest were structured similarly to the pretest to ensure accurate comparisons (Figure 2). The posttest results were compared to the pretest results to measure the extent of the participants' knowledge improvement.

Nama: _____

Pilihlah jawaban yang benar dengan memberi tanda X pada salah satu opsi a, b, c, atau d!

1. Apa yang dimaksud dengan satwa *flagship*?
   a) Satwa yang hanya ditemukan di satu wilayah geografis tertentu
   b) Satwa yang digunakan sebagai simbol atau ikon konservasi
   c) Satwa yang terancam punah dan dilindungi oleh undang-undang
   d) Satwa yang memiliki manfaat ekonomi tinggi bagi masyarakat lokal
2. Satwa *flagship* Pulau Bangka yang merupakan primata kecil dan aktif pada malam hari adalah Mentilin, memiliki nama ilmiah:
   a) *Pongo* sp.
   b) *Cephalopachus bancanus bancanus*
   c) *Nasalis larvatus*
   d) *Macaca fascicularis*
3. Apa fungsi ekologis dari satwa *flagship* seperti Mentilin di habitatnya?
   a) Sebagai predator utama ekosistem hutan
   b) Sebagai penyerbuk utama tanaman endemik
   c) Sebagai pengontrol populasi serangga di ekosistemnya
   d) Sebagai pemakan bangkai yang menjaga kebersihan hutan
4. Apa yang dimaksud dengan satwa endemik?
   a) Satwa yang mampu hidup di berbagai habitat
   b) Satwa yang memiliki potensi ekonomi tinggi
   c) Satwa yang hanya ditemukan di wilayah geografis tertentu
   d) Satwa yang sering dijadikan hewan peliharaan oleh masyarakat lokal
5. Ikan air tawar endemik Pulau Bangka yang dikenal sebagai Tempalak Budu memiliki nama ilmiah:
   a) *Betta splendens*
   b) *Betta chloropharynx*
   c) *Betta imbellis*
   d) *Betta pugnax*
6. Apa ancaman utama yang dihadapi oleh Mentilin di Pulau Bangka?
   a) Perburuan liar untuk perdagangan ilegal
   b) Hilangnya habitat akibat deforestasi dan tambang timah
   c) Penangkapan untuk dijadikan hewan peliharaan
   d) Polusi air akibat kegiatan pertambangan
7. Tempalak Budu terancam oleh aktivitas manusia seperti:
   a) Penebangan liar yang merusak hutan bakau
   b) Pencemaran air dan perubahan aliran sungai
   c) Perburuan untuk dijadikan hewan peliharaan
   d) Kompetisi dengan ikan non-endemik yang agresif
8. Mengapa penting untuk melestarikan satwa *flagship* seperti Mentilin?
   a) Karena memiliki nilai ekonomi yang tinggi
   b) Karena mereka menarik perhatian publik dan mendorong konservasi
   c) Karena mereka mudah ditemukan di pasar hewan
   d) Karena mereka tidak memiliki predator alami
9. Salah satu dampak negatif dari deforestasi di Pulau Bangka terhadap satwa endemik seperti Tempalak Budu adalah:
   a) Penurunan populasi ikan predator
   b) Hilangnya tempat berlindung dan sumber makanan
   c) Peningkatan jumlah spesies invasif
   d) Perubahan iklim lokal yang lebih stabil
10. Apa tindakan yang dapat dilakukan untuk melindungi satwa endemik Pulau Bangka seperti Tempalak Budu?
    a) Membiarkan habitatnya tetap alami dan tidak terganggu
    b) Menyediakan tempat penangkaran khusus di luar habitat aslinya
    c) Meningkatkan eksplorasi untuk menemukan habitat baru
    d) Mengembangkan budidaya di kolam buatan

Figure 2. Ten pre-test and post-test question

3. Results and Discussion

The pretest results indicated that most participants had limited initial knowledge about Bangka Island's flagship and endemic species. The average pretest score was only 56 points, suggesting that many participants were not familiar with the flagship and endemic species of Bangka Island or the primary threats they face. This data underscores the urgent need for enhanced education on conserving Bangka Island's flagship and endemic species.

The educational activities demonstrated high participant interest and active engagement (Figure 3). Participants were able to identify the important roles of each species within their ecosystems and understand the various threats faced by Bangka Island's flagship and endemic species. Many participants stated that this was their first time receiving in-depth information on this topic and felt motivated to learn more. This indicates that the interactive and communicative presentation method was effective in capturing participants' attention and increasing their engagement.

In the posttest phase, the multiple-choice test showed a significant increase in participants' understanding. The posttest average score reached 86 points, reflecting a 30-point improvement compared to the pretest (Figure 4). This demonstrates that the educational methods used were effective in enhancing participants' knowledge about identifying Bangka Island's flagship and endemic species, as well as their conservation efforts.

Figure 3. CS programmers educating participants about *Mentilin* (*Cephalopachus bancanus bancanus*) as the flagship species (top side) and *ikan Bebieu* (*Sundadanio gargula*) as the endemic species (bottom side) of Bangka Island, as well as their conservation efforts

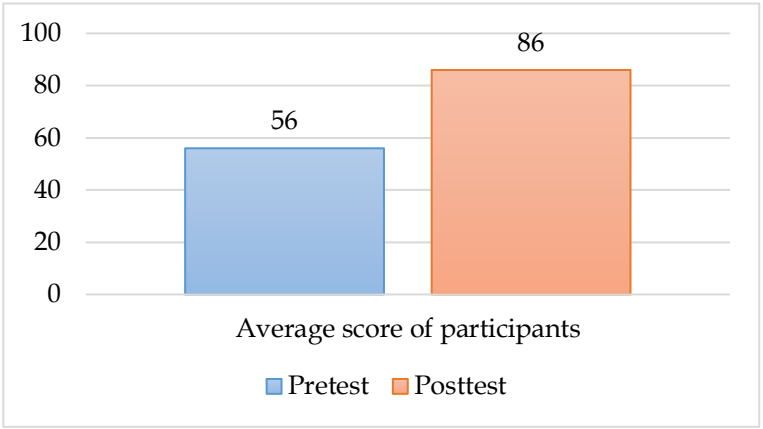

Figure 4. Understanding of participants improved based on the average scores of the pretest and posttest

Conservation education plays a crucial role in shaping individuals aged 18–29, who are in emerging adulthood. At this stage, individuals possess greater independence in decision-making and are at a cognitive and emotional developmental stage that allows for openness to new ideas (Arnett et al., 2014; Hochberg & Konner, 2020; Icenogle et al., 2019). With increased independence and critical thinking abilities, individuals in this age group are more prepared to comprehend concepts related to social responsibility, including environmental awareness. Moreover, this life stage is a pivotal time for individuals to build a strong sense of identity, particularly in terms of their responsibility for environmental and wildlife conservation, making conservation education essential for fostering awareness and action (Brieger, 2018; Pfeifer & Berkman, 2018).

4. Conclusion

The CS program successfully increased environmental awareness among the younger generation in Riding Panjang Village, focusing on the recognition and conservation of flagship and endemic species of Bangka Island. The 30-point improvement in posttest scores compared to the pretest demonstrates the effectiveness of the educational methods used, which included interactive presentations, engaging visuals, and active participation. Participants, aged 18-29, showed a deeper understanding of the ecological roles of these species and the threats they face, while also expressing a growing motivation to learn more and take action. Given that individuals in this age group are at a critical stage of cognitive, emotional, and social development, this CS program effectively tapped into their openness to new ideas and sense of responsibility, helping them form a strong conservation-oriented identity. Overall, this structured educational approach proved to be an effective model for promoting environmental awareness and fostering conservation efforts in biodiversity-rich areas like Bangka Island, underscoring the importance of continued educational initiatives to build a community committed to protecting local wildlife and ecosystems.

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Author(s) Contribution

CS programmers: RS and HHB; Article preparation: RS; Article revision: RS.

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