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Fostering patriotism through education on the conservation of Indonesian endemic animals to students in Selangor, Malaysia

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Abstract
Indonesia, the world's largest archipelago with rich biodiversity, faces significant challenges in conserving endemic animals such as the Komodo dragon, Sumatran tiger, Bornean orangutan, and Javan rhinoceros. This Community Service (CS) program aimed to raise awareness and knowledge among Indonesian students abroad, particularly in Selangor, Malaysia, about the importance of conserving these animals. The program comprised four stages: a pre-test, educational sessions, a virtual tour, and a post-test. Results showed a significant increase in students' understanding, with the post-test average score reaching 85%, compared to 40% on the pre-test. The educational sessions successfully motivated students to participate in conservation efforts, demonstrating the effectiveness of the educational and participatory approach.

Keywords: *Education; Indonesia's endemic animals; SB Hulu Langat; SB At-Tanzil Jinjang*

Mewujudkan cinta tanah air melalui edukasi konservasi satwa endemik Indonesia kepada siswa di Selangor, Malaysia

Abstrak
Indonesia, sebagai negara kepulauan terbesar di dunia dengan keanekaragaman hayati yang kaya, menghadapi tantangan besar dalam melestarikan satwa endemik seperti komodo, harimau Sumatra, orang utan Kalimantan, dan badak jawa. Program Pengabdian kepada Masyarakat (PkM) ini bertujuan untuk meningkatkan kesadaran dan pengetahuan siswa Indonesia yang tinggal di luar negeri, khususnya di Selangor, Malaysia, mengenai pentingnya pelestarian satwa endemik Indonesia. Program PkM ini dilaksanakan dalam empat tahapan, yakni *pre-test*, edukasi, kunjungan virtual, dan *post-test*. Hasil menunjukkan peningkatan signifikan dalam pemahaman siswa mengenai satwa endemik Indonesia, dengan skor rerata *post-test* mencapai 85%, dibandingkan dengan capaian 40% pada *pre-test*. Edukasi yang disampaikan berhasil memotivasi siswa untuk terlibat lebih dalam upaya pelestarian satwa endemik Indonesia, membuktikan efektivitas pendekatan edukatif dan partisipatif.

Kata Kunci: Edukasi; Satwa endemik Indonesia; SB Hulu Langat; SB At-Tanzil Jinjang

1. Introduction

Indonesia, the largest archipelagic country in the world, is renowned for its extraordinary biodiversity. Situated in the tropics, Indonesia hosts various ecosystems that support thousands of species of flora and fauna, many of which are endemic, and found only in Indonesia (Setiawan, 2022). This wealth not only offers high ecological value but also significant economic, scientific, and cultural benefits. However, the

challenges in conserving biodiversity, particularly endemic animals, continue to escalate due to threats such as deforestation, illegal hunting, climate change, and urbanization (Syafutra et al., 2024).

Indonesia's endemic animals such as Komodo dragon (*Varanus komodoensis*), Sumatran tiger (*Panthera tigris sumatrae*), Bornean orangutan (Pongo pygmaeus), and Javan rhinoceros (*Rhinoceros sondaicus*) exemplify the nation's natural wealth that needs conservation. Each species plays a crucial role in their ecosystems and holds high conservation value. For instance, the Komodo dragon, as a top predator, helps control prey populations and maintain ecosystem balance in its natural habitat. However, their populations are declining due to habitat loss, hunting, and other human activities (Ditjen KSDAE, 2020).

Addressing these challenges requires education and awareness-raising as key strategies to promote effective conservation actions. Environmental education from an early age can instill important values about nature conservation and build a sense of responsibility towards the environment. Young generations, especially students, need to be provided with a deep understanding of the importance of biodiversity conservation and ways to achieve it. This understanding will help them grow into environmentally conscious individuals committed to contributing to conservation efforts (Effendi, 2019; Kusuma & Nugraheni, 2024).

For Indonesian students living abroad, such as in Selangor, Malaysia, it is crucial to ensure they remain connected to Indonesia's natural and cultural heritage. The Indonesian diaspora in Malaysia includes various groups, including children studying at SB Hulu Langat and SB At-Tanzil Jinjang. Despite living outside Indonesia, these students need to be introduced to Indonesia's natural wealth, especially its endemic animals, to foster a sense of pride and love for their homeland. Education about Indonesia's endemic animals will not only enrich their knowledge but also build awareness of the importance of environmental conservation.

The Community Service (CS) program focused on educating students about Indonesia's endemic animals and their conservation at SB Hulu Langat and SB At-Tanzil Jinjang in Selangor, Malaysia, represents a strategic step in fostering national pride through an educational and participatory approach. This CS program is designed to introduce various Indonesia's endemic animals, the threats they face, and conservation efforts that can be undertaken. Through this CS program, it is hoped that students will develop a better understanding of Indonesia's biodiversity and be motivated to participate in its conservation efforts.

Targeting Indonesian students abroad, this CS program has the potential to create a broader impact. Educated students about Indonesia's endemic animals can become young ambassadors who spread conservation messages in their communities, both in Malaysia and upon returning to Indonesia. They can act as agents of change, inspiring others to care and take action in conserving biodiversity.

2. Method

The CS program was conducted for four days, since 19 February 2024 to 22 February 2024 at two learning studios or Sanggar Bimbingan (SB) coordinated by the Kuala Lumpur Indonesia School or Sekolah Indonesia Kuala Lumpur (SIKL): SB Hulu Langat

(coordinate: 3°7'25.33" N 101°49'20.11" E) and SB At-Tanzil Jinjang (coordinate: 3°12'25.78" N 101°39'32.48" E) in Selangor, Malaysia (Figure 1). SB Hulu Langat and SB At-Tanzil Jinjang have 29 and 16 students, respectively (Table 1).

Figure 1. Location of SB Hulu Langat and SB At-Tanzil Jinjang in Selangor Malaysia

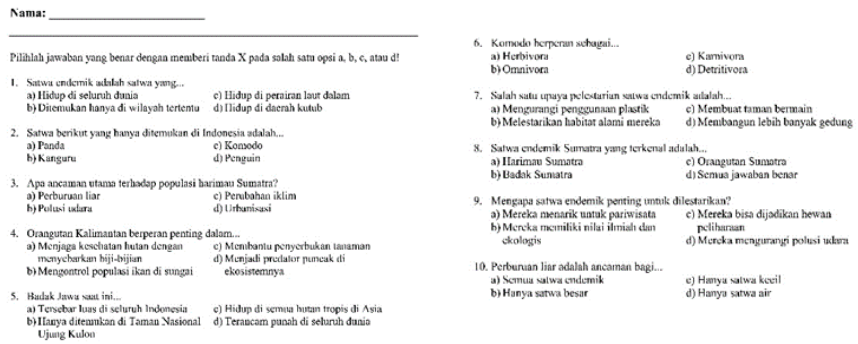
Table 1. Details of SB Hulu Langat and SB At-Tanzil Jinjang students

Class		Students						Participating in filling the pretest and posttest?
		SB Hulu Langat			SB At-Tanzil Jinjang			
		♂	♀	Sum	♂	♀	Sum	
Lower-grade	1	0	4	4	0	0	0	No
	2	0	4	4	6	1	7	No
	3	6	2	8	0	2	2	No
Upper-grade	4	4	1	5	0	2	2	Yes
	5	5	1	6	0	2	2	Yes
	6	2	0	2	2	1	3	Yes
Total		17	12	29	8	8	16	

This CS program is part of the 10th Cohort of the International Community Service & Real Work Lecture program or program Kuliah Kerja Nyata & Pengabdian kepada Masyarakat-Kemitraan Internasional Angkatan 10 (KKN-KI & PkM KI Angkatan 10), organized by the Association of Educational Institutions of Muhammadiyah-Aisyiyah Universities or Asosiasi Lembaga Pendidikan dan Tenaga Kependidikan Perguruan Tinggi Muhammadiyah dan 'Aisyiyah (ALPTK PTMA) in collaboration with SIKL, from 31 January 2024 to 27 February 2024. SIKL is a school under the Education and Culture Attache of the Embassy of the Republic of Indonesia or Atase Pendidikan dan Kebudayaan (Atdikbud) Kedutaan Besar Republik Indonesia (KBRI) in Kuala Lumpur, Malaysia.

This CS program was carried out in four stages pre-test, education, virtual tour, and post-test. The pre-test and post-test (Figure 2) were only administered to upper-grade students (see Table 1). According to Dita Amelia (personal communication, 1 March 2024), upper-grade students (grades 4, 5, and 6) have better reading and writing skills, enabling them to understand and answer test questions more accurately. They also possess more complex understanding and thinking abilities, supporting valid and reliable assessments. Additionally, lower-grade students (grades 1, 2, and 3) experience

greater emotional pressure when faced with such tests. Teaching in lower grades focuses more on developing basic literacy and numeracy skills as well as social skills, while in upper grades, learning is more directed toward evaluating specific knowledge. Upper-grade students are also better able to reflect on their learning and provide useful feedback through these tests, making them an effective tool for measuring academic progress and teaching effectiveness.



Nama: _____

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

1. Satwa endemik adalah satwa yang...
   a) Hidup di seluruh dunia
   b) Ditemukan hanya di wilayah tertentu
   c) Hidup di perairan laut dalam
   d) Hidup di daerah kutub

2. Satwa berikut yang hanya ditemukan di Indonesia adalah...
   a) Panda
   b) Kanguru
   c) Komodo
   d) Penguin

3. Apa ancaman utama terhadap populasi harimau Sumatra?
   a) Perburuan liar
   b) Polusi udara
   c) Perubahan iklim
   d) Urbanisasi

4. Orangutan Kalimantan berperan penting dalam...
   a) Menjaga kesehatan hutan dengan menyebarkan biji-bijian
   b) Mengontrol populasi ikan di sungai
   c) Menibantu penyerbukan tanaman
   d) Menjadi predator puncak di ekosistemnya

5. Badak Jawa saat ini...
   a) Tersebar luas di seluruh Indonesia
   b) Hanya ditemukan di Taman Nasional Ujung Kulon
   c) Hidup di semua hutan tropis di Asia
   d) Terancam punah di seluruh dunia

6. Komodo berperan sebagai...
   a) Herbivora
   b) Omnivora
   c) Karnivora
   d) Detritivora

7. Salah satu upaya pelestarian satwa endemik adalah...
   a) Mengurangi penggunaan plastik
   b) Melestarikan habitat alami mereka
   c) Membuat taman bermain
   d) Membangun lebih banyak gedung

8. Satwa endemik Sumatra yang terkenal adalah...
   a) Harimau Sumatra
   b) Badak Sumatra
   c) Orangutan Sumatra
   d) Semua jawaban benar

9. Mengapa satwa endemik penting untuk dilestarikan?
   a) Mereka menarik untuk pariwisata
   b) Mereka memiliki nilai ilmiah dan ekologis
   c) Mereka bisa dijadikan hewan peliharaan
   d) Mereka mengurangi polusi udara

10. Perburuan liar adalah ancaman bagi...
    a) Semua satwa endemik
    b) Hanya satwa besar
    c) Hanya satwa kecil
    d) Hanya satwa air

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

The first stage was the pre-test. In this stage, students were given a multiple-choice test aimed at measuring their initial knowledge about Indonesia's endemic animals. The test consisted of 10 questions (each question worth 10 points, with a total score of 100) covering the identification of Indonesia's endemic animals and the threats they face. This pre-test is important for establishing a baseline of students' knowledge before they receive the educational material. The pre-test was conducted in the classroom under the supervision of teachers to ensure orderliness and validity of the results.

The second stage was education through an interactive and communicative presentation. In this stage, students were provided with material about Indonesia's endemic animals. The presentation used PowerPoint (PPT) media accompanied by an interactive and communicative session with images and interesting facts to make the session engaging and easy to understand. Additionally, an interactive Q&A session was held during the presentation to maintain student engagement and ensure they comprehended the material presented.

The third stage was a virtual tour to Bandung Zoo and Gembira Loka Animals Museum. In this virtual tour, students could explore the zoo and museum virtually and gain additional information about Indonesia's endemic animals. This tour provided a visual and interactive experience that enriched the students' knowledge.

The fourth stage was the post-test. Similar to the pre-test, students were given a multiple-choice test to measure their knowledge improvement after participating in the educational session and virtual tour. This test aimed to evaluate the effectiveness of the educational program conducted. The 10 questions (each question worth 10 points, with a total score of 100) in the post-test were structured similarly to the pre-test to ensure an accurate comparison. The post-test results would be compared with the pre-test results to determine the extent of the student's knowledge improvement.

3. Results and Discussion

The pre-test results (Table 2) indicated that most students had limited initial knowledge about Indonesia's endemic animals. The pre-test average score was only 40%, indicating that many students were not familiar with the types of endemic animals in Indonesia and the main threats they face. This data underscores an urgent need to enhance education on the conservation of Indonesia's endemic animals.

Table 2. Pre-test results of SB Hulu Langat and SB At-Tanzil Jinjang students

Learning studios or *Sanggar Bimbingan* (SB)	Upper-grade students	Pretest score
SB Hulu Langat	No. 1	40
	No. 2	60
	No. 3	40
	No. 4	50
	No. 5	60
	No. 6	30
	No. 7	60
	No. 8	50
	No. 9	30
	No. 10	40
	No. 11	30
	No. 12	30
	No. 13	40
SB At-Tanzil Jinjang	No. 14	60
	No. 15	50
	No. 16	40
	No. 17	40
	No. 18	60
	No. 19	40
	No. 20	50
Pretest average score of SB Hulu Langat students		43.08%
Pretest average score of SB At-Tanzil Jinjang students		48.57%
Pretest average score of SB Hulu Langat and SB At-Tanzil Jinjang students		40.05%

The educational activities demonstrated that students were very interested and actively participated (Figure 3, Figure 4, and Figure 5). Students were able to identify the important roles each animal plays in their ecosystem and understand the various threats faced by Indonesia's endemic animals. Many students expressed 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 effectively captured students' attention and increased their engagement.

The virtual tour results showed that students enjoyed this visual and interactive experience, making them feel as if they were visiting the zoo and museum (Figure 6). Students were very enthusiastic and asked many questions after the virtual tour session. This experience enriched their knowledge and reinforced the material presented in the educational session. The virtual tour also demonstrated the effectiveness of using technology in education, especially in situations where physical visits are not feasible.

Figure 3. CS Programmer educated SB Hulu Langat students

Figure 4. CS programmer educated SB At-Tanzil Jinjang students

Figure 5. Screenshot of PPT slide about Komodo dragon and Sumatran tiger

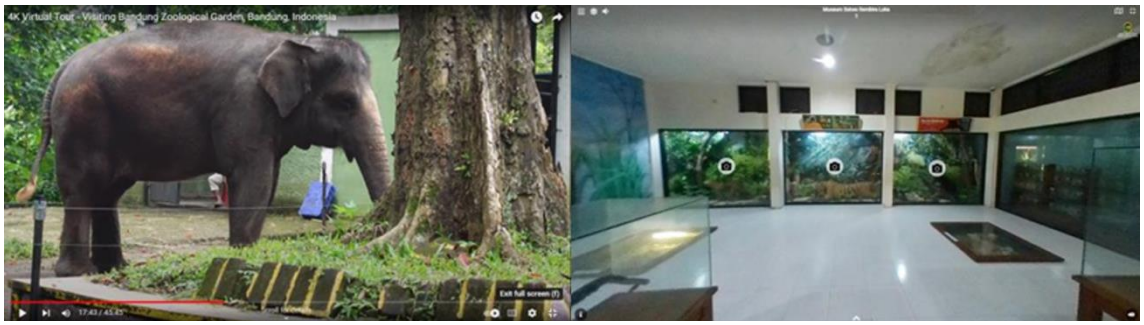


Figure 6. Screenshot of virtual tour to Bandung Zoo (left side) and Gembira Loka (right side)

In the post-test stage, the multiple-choice test showed a significant increase in students' understanding. The posttest average score reached 85% (Table 3), showing a 45% improvement compared to the pre-test (Figure 7). This indicates that the educational methods used were highly effective in enhancing students' knowledge about identifying Indonesia's endemic animals and conservation efforts.

Table 3. Post-test results of SB Hulu Langat and SB At-Tanzil Jinjang Students

Learning studios or *Sanggar Bimbingan* (SB)	**Upper-grade students**	**Post-test score**
SB Hulu Langat	No. 1	40
	No. 2	60
	No. 3	40
	No. 4	50
	No. 5	60
	No. 6	30
	No. 7	60
	No. 8	50
	No. 9	30
	No. 10	40
	No. 11	30
	No. 12	30
	No. 13	40
SB At-Tanzil Jinjang	No. 14	60
	No. 15	50
	No. 16	40
	No. 17	40
	No. 18	60
	No. 19	40
	No. 20	50
Posttest average score of SB Hulu Langat students		43.08%
Posttest average score of SB At-Tanzil Jinjang students		48.57%
Posttest average score of SB Hulu Langat and SB At-Tanzil Jinjang students		40.05%

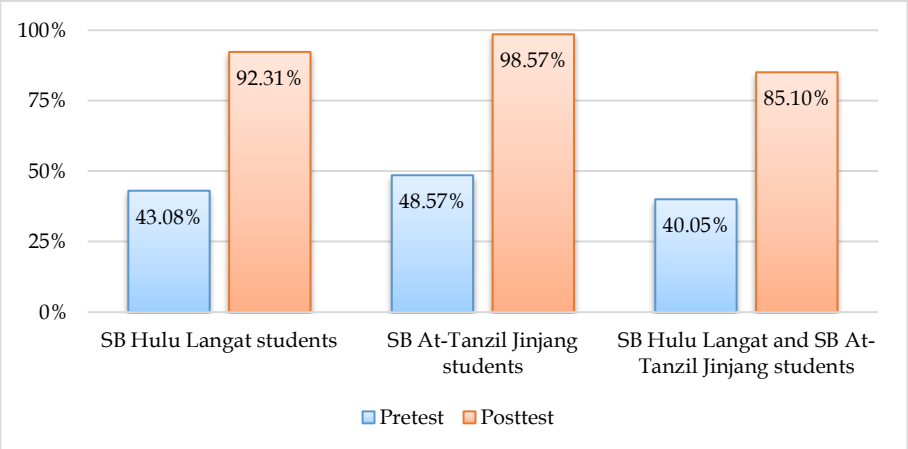


Figure 7. Understanding of SB Hulu Langat and SB At-Tanzil Jinjang students improved based on the average scores of the pre-test and post-test

Conservation education at an early age plays a crucial role in shaping the character of future society. Childhood is a critical period for instilling values and habits that will shape behavior in adulthood. Therefore, character development is most effectively carried out during primary school. At this stage, children are more receptive to and capable of internalizing positive values conveyed through various educational methods. This character-building serves as a fundamental basis for developing children's affective aspects, in addition to cognitive (intellectual) and psychomotor (skills) aspects. These three aspects support and play a role in forming well-characterized and competent individuals (Sumarto et al., 2019).

4. Conclusion

The CS program successfully increased the knowledge and awareness of SB Hulu Langat and SB At-Tanzil Jinjang students regarding the conservation of Indonesia's endemic animals. The pre-test results showed that students' initial knowledge about Indonesia's endemic animals and their conservation was low. However, after participating in a series of educational activities, there was a significant increase in their understanding. Education and virtual tours proved effective in attracting students' interest and enhancing their engagement. This CS program not only increased students' knowledge but also motivated them to become change agents in biodiversity conservation efforts. Therefore, this CS program has the potential to create a broad positive impact, both in Malaysia and when students return to Indonesia, through the dissemination of knowledge and awareness of the importance of conserving endemic animals.

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Author Contribution

CS programmer: RS; Article preparation: RS; Article revision: RS.

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