

## Types of Shade Plants as Efforts to Increase Students' Knowledge and Attitudes for Conservation

Eka Haryati Yuliany<sup>a1</sup>, Sarno<sup>a2</sup>, Laila Hanum<sup>a3</sup>, Sri Parwanti<sup>b4</sup>

<sup>a</sup>Universitas Sriwijaya

Palembang, Indonesia

<sup>1\*</sup>Adinnda.ekka@email.com

<sup>2</sup>Sarno\_klaten65@yahoo.co.id

<sup>3</sup>Lailahanum@ymail.com

<sup>b</sup>Universitas Muhammadiyah Palembang

Palembang, Indonesia

<sup>4</sup>parwantisri12@gmail.com

### Abstract

*Conservation education carried out for children and adolescents plays an important role in the formation of basic community character which is important in achieving the affective aspects of children, in addition to cognitive or intellectual aspects and psychomotor aspects or skills. The purpose of this community service is to increase knowledge, ability and provide scientific information about shade plants that can be used to overcome pollution and encourage conservation attitudes towards the environment. This service was carried out in June 2022 with students at SMP Negeri 44 Palembang class VII. The method used in this community service is a participatory method. The increase in students' knowledge after the service can be seen from the question and answer activities, the children enthusiastically answer the questions given after the discussion and stimulus to students about the importance of shade plants. Community service, especially regarding conservation education for students, will ultimately support sustainable development and can be implemented in daily life so that it can have a positive impact on environmental conservation in the present and future.*

**Keywords:** conservation, education, participatory

### A. Introduction

Humans are never free from threats that come from the surrounding environment, it can be in the form of disease outbreaks or natural phenomena such as climate change. Human interaction with the environment is a natural process and will take place from the time humans are born until they die. This interaction occurs because humans need the carrying capacity of the environment to meet the needs of daily life. Various kinds of needs for human life ranging from air to breathe, water to drink, food as a source of energy and other needs have been provided in nature and humans just need to take them from the environment [1].

Concern for the environment is influenced by environmental knowledge. This is expected to be a correct reference in preserving nature and solving environmental problems it faces. One of the behaviors that need to be developed for the nation's young generation is the behavior of caring for the environment and being responsible for environmental pollution problems that occur in the environment [2].

Road shade plants are plants that are often encountered, because of their very strategic location, namely on the edge of the highway. Shade plants or roofing plants are types of plants in the form of plants with branches that are more than 2 m high, have branches that widen to the side like shady plants and can provide shade and withstand the glare of the sun, especially for pedestrians [3].

According to [4], Road shade plants have two functions, namely as aesthetics and ecological. One of the ecological functions of road shade plants is to accumulate pollutants. The type of pollution that requires systematic and comprehensive handling is pollution that is mostly produced by human activities such as burning motor vehicle fuel. In general, the ecological functions of road shade plants are (1) as city lungs because these plants produce oxygen gas needed by all living things, (2) as absorbents of toxic gases/particles to reduce air pollution, (3) as noise absorbers and (4) as bird habitat [5].

Not all types of plants can be used as road shade plants, as road shade plants there are certain conditions that must be met [6] said the characteristics of good shade trees planted include: (1) better absorption of CO<sub>2</sub> and lead gases; (2) can produce Oxygen; (3) tree height is more than two meters but not more than 12 meters; (4) lush with leaf density that can cover the sun's rays; (5) broad canopy or able to cover a large area; (6) maintenance is easy; (7) the branches are not easily broken when blown by strong winds; (8) twigs or branches are not too large, because it is dangerous if they fall and fall on people who are under them; (9) strong roots into the ground so that trees do not fall easily when blown by strong winds, roots do not come out to the surface which can damage floors and walls of houses or sidewalks.

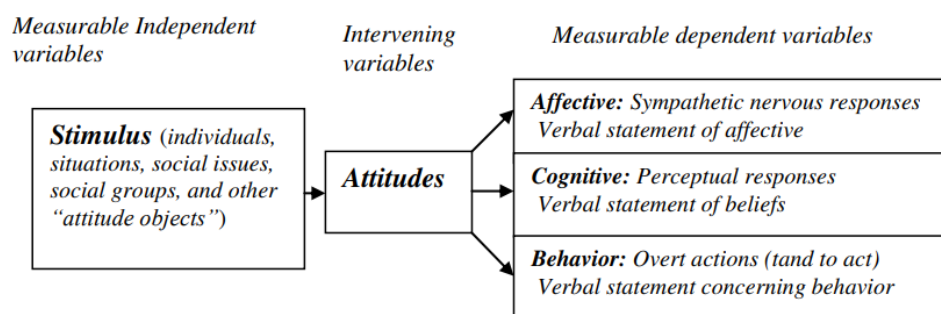
According to [7] Types of trees that are commonly used as shade both along roads and in city parks are Trembesi Tree (*Samanea saman*), Kiara Payung (*Fellicium decipiens*), Tanjung (*Mimusops elengi*), Glodokan Tiang (*Polyaltia longifolia*), and Pohon Palembang (*Aracaceae*). Minister of Public Works No. 05/PRT/M/2008 also mentions examples of types of shade plants that absorb air pollution, including Angsana (*Ptherocarphus indicus*), Akasia daun besar (*Accasia mangium*). [4] added types of road shade plants such as Glodogan (*Polyalthia longifolia*), Filicium (*Filicium decipiens*), Ketapang (*Terminalia catappa*), Beringin (*Ficus benjamina*), Kupu-kupu (*Bauhinia tomentosa*), Puspa (*Schima wallichii*), Kenari (*Canarium ovatum*) dan Genitu (*Chrysophyllum cainito*).

Various plants can serve as shade, this can be seen from the structure of the trunk and branches with a height of more than 2 meters which can provide shade. The general requirements for shade plants grown in urban areas are to be liked and not harmful to city dwellers, able to grow in a marginal environment (infertile soil, polluted air and water), resistant to pests, deep roots and not easy to fall, not leaf fall, fast growing, ornamental and architectural value, can produce O<sub>2</sub> and improve the quality of the urban environment, priority using endemic/local vegetation and biodiversity [8].

One of the technologies that can be used to absorb air pollution through shade plants is phytoremediation. Phytoremediation is a technology for cleaning, removing or reducing harmful pollutants, such as heavy metals, pesticides, toxic organic compounds in soil or water using the help of plants. The phytoremediation technique has several advantages, namely easy to apply, a cheap alternative to waste treatment compared to bioremediation using bacteria or fungi. The mechanism of phytoremediation can be in the form of active absorption (rhizofiltration) and passive absorption. Research on various kinds of plants has been carried out to determine the potential of each of these plants in absorbing air pollution [9].

Conservation education carried out for children and adolescents plays an important role in shaping the character of the community in the future. This character building becomes an important foundation in achieving the affective aspects of children, in addition to cognitive or intellectual aspects and psychomotor aspects or skills. Character education can be built through classroom learning, the culture of the education unit, extracurricular activities, and the involvement of parents and the community can foster good character and attitude.

The following is a schematic of the concept of attitude according to [10] in his book entitled "Attitude Organization and Change":



**Figure 1.** Stimulus and Attitude Concepts

Attitude has a very big influence in human life and greatly determines a person's behavior (behavior). Attitude that crystallizes with a stimulus is a human response that places signals, phenomena or information that is thought into a dimension of consideration for action. Signals issued by objects, people, plants, animals, the greatness of God and others, can be a stimulus if the information contained in the signal can be captured, understood and can be assessed by humans according to the capacity of the components of cognition, affection and overt action [10].

This service is carried out at SMP Negeri 44 Palembang, with this community service, it is hoped that there will be an increase in knowledge, skills and provide scientific information about shade plants that can be used to overcome pollution and encourage conservation attitudes towards the environment. Students will realize that what they learn is useful for their future environment. Thus, it will make them position themselves as themselves who need a useful provision for later life and students will try to achieve it.

## B. Methods

The model used in this service is the picture and picture model. According to research [11] This learning model relies on images as a medium in the learning process. The method used in this community service is a participatory method [12]. This model is expected to make students more interested and quickly understand the types of shade plants that can absorb dust so that they can increase students' knowledge and attitudes about environmental conservation. Realization of problem solving in this community service by holding activities in the form of gathering information and sharing information. Then to see the increase in students' knowledge after counseling using the picture and picture model, discussions and questions and answers were held.

## C. Result and Discussion

Shade plants are oxygen-producing plants, this is because plants absorb CO<sub>2</sub> and produce O<sub>2</sub>, so that shade plants are used as one of the most oxygen-producing plants and as a source of human life. In addition, shade plants are also used as flood and landslide barriers because shade plants have roots that can absorb large amounts of water. Shade plants can also fight global warming, and fight air pollution [13].

Shade trees are needed as adequate facilities and infrastructure with the concept of a Go Green city in the face of global warming and the creation of clean aesthetic facilities. Urban Forests which have diverse vegetation compositions can act as air purifiers by utilizing CO<sub>2</sub> in the air and used in the photosynthesis process [14]

The increase in students' knowledge after the service can be seen from the question and answer activities, the children enthusiastically answer the questions given after the discussion and stimulus to students about the importance of shade plants. Furthermore, "Tri-Stimulus Amar Pro-Conservation" can provide an input for improving the theory of conservation attitudes and behavior, in particular contributing to the determination of the stimulus group for biodiversity resource conservation action which must be a unified whole. The intended stimulus is a strong impetus to the attitudes and behavior of the community for the realization of concrete conservation actions in the field. The main drivers of conservation attitudes and actions can be grouped into 3 major groups, namely natural stimulus, beneficial stimulus and religious stimulus. These three groups of stimuli cannot be separated and must have crystallized into a single unit as a powerful stimulus (evoking stimulus) driving, driving and shaping attitudes for conservation action. This is a prerequisite for the realization of conservation in the real world or in the grass root world. In the context of the value system, these three stimulus groups are nothing but the crystallization of values: "truth", "interest" and "goodness". Crystallization or resultant or a combination of these values can be the driving force, balancing and controlling the realization of attitudes and behaviors for sustainable conservation actions in real life. drivers and shapers of attitudes for conservation action. This is a prerequisite for the realization of conservation in the real world or in the grass root world. In the context of the value system, these three stimulus groups are nothing but the crystallization of values: "truth", "interest" and "goodness". Crystallization or resultant or a combination of these values can be the driving force, balancing and controlling the realization of attitudes and behaviors for sustainable conservation actions in real life. drivers and shapers of attitudes for conservation action. This is a prerequisite for the realization of conservation in the real world or in the grass root world. In the context of the value system, these three stimulus groups are nothing but the crystallization of values: "truth", "interest" and "goodness". Crystallization or resultant or a combination of these values can be the driving force, balancing and controlling the realization of attitudes and behaviors for sustainable conservation actions in real life [15].

Some of the results of research on the relationship between environmental knowledge and attitudes towards conservation and care for the environment include:[16]found that there was a significant relationship between the level of knowledge and the behavior of loving the environment of students, meaning that the higher the value of environmental knowledge, the higher the value of the behavior of loving the environment of students. On the other hand, the lower the value of environmental knowledge, the lower the student's environmental-loving behavior. [17]found that there is a positive relationship that is quite

significant and close to significant between environmental knowledge and the attitude of preserving the environment. If the value of environmental knowledge increases, the value of the attitude of preserving the environment will also increase. On the other hand, if the value of environmental knowledge decreases, the value of the attitude of preserving the environment will also decrease.

Conservation education for students will ultimately support sustainable development because with the attitude of conservation in children's development it will take place continuously so that it will become a character that is shown or implemented in everyday life so that it can have a positive impact on preserving the environment in the future.

#### D. Conclusion

Community service, especially regarding conservation education for students, will ultimately support sustainable development and can be implemented in daily life so that it can have a positive impact on environmental conservation in the present and future.

#### References

- [1] M. Akhadi, *Isu Lingkungan Hidup; Mewaspada Dampak Kemajuan Teknologi Dan Polusi Lingkungan Global Yang Mengancam Kehidupan*. Yogyakarta: Graha Ilmu, 2014.
- [2] S. D. Ardianti, I. A. Pratiwi, And M. Kanzunudin, "Implementasi Project Based Learning (Pjbl) Berpendekatan Science Edutainment Terhadap Kreativitas Peserta Didik," *Refleks. Edukatika J. Ilm. Kependidikan*, Vol. 7, No. 2, Pp. 145–150, 2017, Doi: 10.24176/Re.V7i2.1225.
- [3] Permen Pu: 05/Prt/M/2008, "Peraturan Menteri Pekerjaan Umum Nomor : 05/Prt/M/2008."
- [4] S. L. Dan S. S. Slamet Santoso, "Inventaris Tanaman Peneduh Penerjab Timbal Di Purwokerto," Vol. 2, No. January, Pp. 978–979, 2012.
- [5] F. Azzahro, "Penentuan Hasil Evaluasi Pemilihan Spesies Pohon Dalam Pengendalian Polusi Udara Pabrik Semen Berdasarkan Karakteristik Morfologi," *J. Res. Technol.*, Vol. 5, No. 2, 2019, Doi: 10.31220/Osf.Io/Xr4ke.
- [6] W. A. Rahmy, B. Faisal, And A. R. Soeriaatmadja, "Kebutuhan Ruang Terbuka Hijau Kota Pada Kawasan," *Lingkung. Binaan Indones.*, Vol. 1, No. 1, Pp. 27–38, 2012.
- [7] R. G. Sunaryo, N. Soewarno, Ikaputra, And B. Setiawan, "Posisi Ruang Publik Dalam Transformasi Konsepsi Urbanitas Kota Indonesia," *Serap*, Pp. 1–8, 2010, [Online]. Available: [Http://Repository.Petra.Ac.Id/Id/Eprint/15517](http://Repository.Petra.Ac.Id/Id/Eprint/15517).
- [8] D. Dewiyanti, "Ruang Terbuka Hijau Kota Bandung Suatu Tinjauan Awal Taman Kota Terhadap Konsep Kota Layak Anak," *Maj. Ilm. Unikom*, Vol. 7, No. 1, Pp. 13–26, 2007.
- [9] Y. Ambarwati And S. Bahri, "Review: Fitoremediasi Limbah Logam Berat Dengan Tumbuhan Akar Wangi (*Vetiveria Zizanioides* L)," *Anal. Anal. Environ. Chem.*, Vol. 3, No. 02, Pp. 139–147, 2018, Doi: 10.23960/Aec.V3.I2.2018.P139-147.
- [10] M. Rosenberg, *Cognitive, Affective, And Behavioral Components Of Attitudes*. In M.J. Rosenberg Et Al., *Attitude Organization And Change*. 1960.
- [11] E. H. Yuliany, "Pengenalan Manfaat Daun Kelor Pada Proses Pemulihan Warna Kulit Akibat Hiperpigmentasi Di Sma Negeri 9," *J. Botoboh*, Vol. 5, No. 1, P. 7077, 2020.
- [12] A. Aseptianova And E. H. Yuliany, "Penyuluhan Manfaat Belimbing Wuluh (*Averrhoa Bilimbi* Linn.) Sebagai Tanaman Kesehatan Di Kelurahan Kebun Bunga, Kecamatan Sukarami, Palembang," *Abdihaz J. Ilm. Pengabd. Pada Masy.*, Vol. 2, No. 2, P. 52, 2020, Doi: 10.32663/Abdihaz.V2i2.910.
- [13] Suprayitno, *Kajian Analisis Tanaman Lokal Sebagai Pohon Peneduh Pada Pedestrian Kota*. Medan: Universitas Medan Area, 2009.
- [14] N. Amin, "Tumbuhan Peneduh Di Hutan Kota Banda Aceh Sebagai Media Pembelajaran Biologi," *Pros. Biot.*, 2018, [Online]. Available: [Https://Www.Jurnal.Ar-Raniry.Ac.Id/Index.Php/Pbiotik/Article/View/2735](https://Www.Jurnal.Ar-Raniry.Ac.Id/Index.Php/Pbiotik/Article/View/2735).
- [15] E. Amzu, K. Sofya, L. B. Prassettyo, And H. Kartodihardjo, "Community's Attitudes And Conservation: An Analysis Of Kedawung (*Parkia Timoriana* (Dc.) Merr.), Stimulus Of Medicinal Plant For The Community, Case In Meru Betiri National Park," *Media Konserv.*, Vol. 12, No. 1, Pp. 22–32, 2007.
- [16] Nelly Florida Sirait, *Hubungan Tingkat Pengetahuan Dan Kemampuan Berpikir Kritis Terhadap Perilaku Mencintai Lingkungan Siswa Sma Negeri Se-Kota Medan Tahun 2012*, Vol. 05, No. 2. Medan: Universitas Negeri Medan, 2016.
- [17] A. Azhar, M. D. Basyir, And A. Alfitri, "Hubungan Pengetahuan Dan Etika Lingkungan Dengan

Sikap Dan Perilaku Menjaga Kelestarian Lingkungan,” *J. Ilmu Lingkung.*, Vol. 13, No. 1, P. 36, 2016, Doi: 10.14710/Jil.13.1.36-41.

**Copyright Holder**

© Yuliany, E. H., Sarno, S., Hanum, L., & Parwanti, S.

**First publication right :**

Dikdimas: Jurnal Pengabdian Kepada Masyarakat

This article is licensed under:

