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Plant Awareness Disparity: Treasuring the Trees Around Us

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Abstract: Plant Blindness i.e. the inability to see or notice the plants around us known as Plant Awareness Disparity has serious ecological implications. This article discusses the effect of Plant Awareness Disparity and the classroom strategies which may be employed to address this issue.
Keywords: Plant Blindness, Plant Awareness Disparity

I. INTRODUCTION

Earth, Vasundhara, thriving with life, is a unique planet in terms of its diverse Flora and Fauna. The two forms of life Plants and Animals have been beautifully coexisted since ages. Talk about nature, and you can imagine greenery, mountains, rivers and animals. But wait, can you recognize the animals in this frame of imagination, of course you can. In the contrast, think of the forest and try to name the trees and plants. This testing of our floral knowledge is an eye-opener, bringing forth an alarming issue. Are we neglecting plants and their importance in ecosystem by not recognizing them?

II. PLANT BLINDNESS OR PLANT AWARENESS DISPARITY

This phenomenon of failure to notice and recognize plants is known as Plant Blindness. The term "Plant Blindness" was introduced in 1999 and is defined as "the inability to see or notice the plants in one's own environment—leading to: (a) the inability to recognize the importance of plants in the biosphere, and in human affairs; (b) the inability to appreciate the aesthetic and unique biological features of the life forms belonging to the Plant Kingdom; and (c) the misguided, anthropocentric ranking of plants as inferior to animals, leading to the erroneous conclusion that they are unworthy of human consideration" (Wandersee & Schussler,1999, 2001). This phenomenon has been explained by Wandersee & Schussler,stating that humans pay most attention to the items that are within 15 degrees above or below the midline of their vision leaving out objects low to the ground (grasses and herbs) or high above our heads (trees). Parsley (2020) proposed the term "**Plant Awareness Disparity**" for Plant Blindness.
Plant Awareness Disparity has been defined as the tendency not to notice plants within one's environment, leading to naive and anthropocentric points of view, such as plants are not important to humans, are boring, or do not do anything (Wandersee and Schussler, 1999; Parsley, 2020).

III. COMPONENTS OF PLANT AWARENESS DISPARITY

There are four components of PAD:

1) Attitude - not liking plants.
2) Attention- not noticing plants.
3) Knowledge- not understanding the importance of plants.
4) Relative interest - finding animals more interesting than plants.

IV. VARIABLES INFLUENCED BY PAD

PAD influences several important variables effecting individual and ecosystem. The variables are as follows

A. Cognitive Variables-

Plant Awareness Disparity i.e.lack of awareness about plants may be due to shortage of knowledge about plants.People are unable to observe and identify plants, an important cognitive variable i.e.attention. They also find it difficult to memorize the names and characteristics of plants.
Studies by Bozniak, 1994; Darley, 1990; Flannery, 1991 and Hershey, 1996, 2002 indicated that Life sciences curricula tend to be zoocentric suggesting that studying animals is more important than studying plants.

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Further studies by Link –Perez et al. (2010) and Schussler et al. (2010) have shown that School science textbooksinclude more content on animals than on plants, as shown by the number and diversity of images, the quantity of text, and the number of animal examples of core biological concepts.

There have been several research studies suggesting students and general public identify and recall plant species more poorly then animal ones (Bebbington, 2005; Patrick and Tunnicliffe, 2011; Kaasinen, 2019; Zani and Low, 2022) and have poor knowledge about plants (Kubiatko et al., 2021; Fermandez-Diaz, 2022).

B. Emotional and Behavioral Variables –

There have been studies on emotional and behavioural variables like attitude, interest and sensitivity that suggested that people tend to ignore plants and do not care for them; they are less interested in plants as compared to animals and do not show serious concerns about the extinction and conservation needs of plants.

Miralles et al. (2019) suggested that plants receive less compassion and empathy from humans than animals because they are phylogenetically distant from humans.Learners exhibit low interest and negative attitudes towards plants, or a preference for animals (Stagg & Dillon, J., 2022).

Negative Attitude towards plants is contributed by belief such asplants are ‘less alive’ than animals because they lack obvious movement or active behaviours (Yorek et al.; 2009) and an underestimation of the importance of plants for human survival or the biosphere (Amprazis et al.; 2021).

Some studies suggest that people with strong emotional bonds with plants tend to show more plant awareness than people with higher Plant Awareness Disparity (Krosnick et al.,2018; Stagg et al.,2024).

C. Educational Variables –

Educational variables such as learning process, teaching methodology, assessment and evaluation influences Plant Awareness Disparity. The representation of plants in the traditional curriculum is limited, resulting in the declining interest of students towards plants; lack of visual learning further reduces the awareness towards plants.

Lesser emphasis on plants in the evaluation processes also results in lesser identification and preference to plants by students. Plant-related knowledge is often grounded in lived experiences with plants, handed down intergenerationally through oral transmission (Gras et al., 2019). These intangible relations are anchored in expressive culture (Herrero & Cardaño, 2015; Ivanova et al.,2021), such as songs, stories, narratives, and sayings, which can be defined as oral traditions (Fernández-Llamazares & Cabeza, 2017; Gras et al.,2016).

Approaches like Botanical garden visits have been found to counteract Plant Blindness (Lindemann Matthies, 2006). Studying plants in the field improves identification skills (Borsos, Boric, and Patocskai, 2021). Outdoor education not only boosts plant species knowledge, but also influence attitude towards plants in a positive way (Fancovicova and Prokop, 2011).

D. Ecological and Environmental Variables –

Negligence towards plants and their conservation efforts may result in the extinction of several keystone species. Consequently, ecological imbalances may follow. Further overexploitation of resources due to lack of understanding about the importance of a plant species, worsens the overall situation.

Students often display a lack of awareness regarding biodiversity, particularly plant biodiversity (Borsos et al., 2023; Çil and Yanmaz, 2017; Pedrera et al., 2021). For instance, many students are unable to identify the most common trees and wild plants that surround them in their daily lives (Kaasinen, 2019; Lindemann-Matthies, 2005; Pedrera et al., 2021).

Plant blindness is a significant barrier to understanding the crucial role plants play in sustaining life on Earth, as well as to developing a comprehensive perspective on biodiversity and nature (Kletecki et al., 2021; Nyberg et al., 2019; Wandersee and Schussler, 2001).

E. Social and Cultural Variables –

The education curricula have not been able to adequately imbibe the indigenous and tribal practices of identifying, propagating and conserving plants by attaching cultural and religious values to plants. The oral knowledge tradition traversing over the generations since ages is losing its existence.

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Studies established that plant knowledge was concentrated in the older generations, a reliable indicator of knowledge erosion (Pilgrim et al., 2008). Studies have shown that people in high-income countries have stronger preferences or recall for domestic animals or garden flowers compared with native fauna and flora (e.g. Patrick & Tunnicliffe, 2011).

If immersed in a plant-affiliated culture, the individual will experience language and practices that enhance capacity to detect, recall, and value plants, something less likely to occur in zoocentric societies' (Balding and Williams, 2016). The continued dependence on wild plants for medicine, food, fuel or fiber is typically found in traditional or indigenous societies in low- and middle-income countries (Pilgrim et al.,2008).

V. ROLE OF PLANT AWARENESS DISPARITY IN BIODIVERSITY CONSERVATION

A. Plant identification and CONSERVATION awareness-

Addressing Plant Awareness Disparity may help in identification of plants and understanding of their importance. This awareness towards endangered species may lead to the conservation efforts, making it easier to formulate and implement appropriate policies and measures.

B. Restoring Ecological balance-

Plants are the primary producers of ecosystem and provide food shelter and oxygen to other organisms. Plant Awareness Disparity resulting in increased deforestation and other developmental processes at the cost of nature, adversely influences biodiversity. Raising plant awareness will help protect natural habitats for animals and thus biodiversity and ecological balance.

C. Conservation of ecosystem services-

Plants help in controlling climate change by absorbing carbon dioxide. They are also significant for conservation of water resources. The vegetation in grasslands and forests help prevent soil erosion and regulation of water cycle. An awareness and understanding of this contribution of plants will help people to participate actively in efforts of maintaining Biodiversity.

D. Identifying medicinal and economic importance of plants –

Several tribal medicinal plants are at the verge of extinction, since people are not aware of their importance. Reducing PAD will help in the conservation of medicinal plants. This will also help in protecting Agro biodiversity by which local and traditional crops will be conserved from extinction.

E. Formulation of policies and Environmental Education–

An awareness of PAD will help people to support policies related to environment conservation. Spreading awareness about PAD will help the future generation to become more environment-conscious and participate more in the policies and programs conducted for biodiversity conservation by NGOs.

VI. CLASSROOM STRATEGIES TO ADDRESS PAD

Various activities may be conducted in classrooms for reducing Plant Awareness Disparity and raise awareness and interest towards plants in students such as:

A. Nature Observation –

Students may be taken for visits of parks, botanical gardens and forests. They may be encouraged to explore, identify plants and write their names. Students may be asked to observe the leaf, flower and fruits of trees. They may prepare a presentation on any one plant and present its importance.

B. Plantation in classrooms –

Every student may be asked for sowing a seed/ plant a plantation in a pot, to water it, to care for it and to observe its development for about a week or month. This will develop sensitivity among children and make them environmentally responsible.

C. Drawing and Poster Making –

Students may be asked to draw pictures of various plants and their ecological significance. Poster making events on the themes such as importance of plants biodiversity and forest conservation will develop creative expression of student alongwith raising awareness towards the issue.

D. Plant Experiments –

Experiments to demonstrate photosynthesis and seed germination, changes in color of water after adding leaf petals etc help understand scientific concept awareness and plant life processes. Classrooms should be laboratory to conduct more of such experiments to understand plant life processes.

E. Story writing on plants –

Students may be asked to write plant biographies or story reflecting on plant experiences and such story may be presented in the story telling sessions. This will help develop empathy with plants and boost the conservation efforts.

F. Puzzles and quizzes on Plants-

Monthly or weekly sessions on plant based games and quizzes may generate awareness towards plants. Students may be shown visuals of plants and asked to narrate its importance.It will help develop constant reading and observation in students.

G. Biodiversity Tours –

Students' visits to herbal gardens or orchards, national parks and organizing expert talks on conservation of endangered plant species will raise the general plant awareness of students.

H. Essay writing competitions –

Students may be asked to write essays or blogs on importance of forests. This will help develop thinking and reflection of students

Plant Awareness Disparity is a serious cognitive tendency, due to which plants surrounding us are neglected. This has serious implications not only at individual level but also at educational, social and environmental levels. This is an issue which needs immediate cure. More research and proactive efforts are needed to move us from plant indifferent to plant sensitive generation.

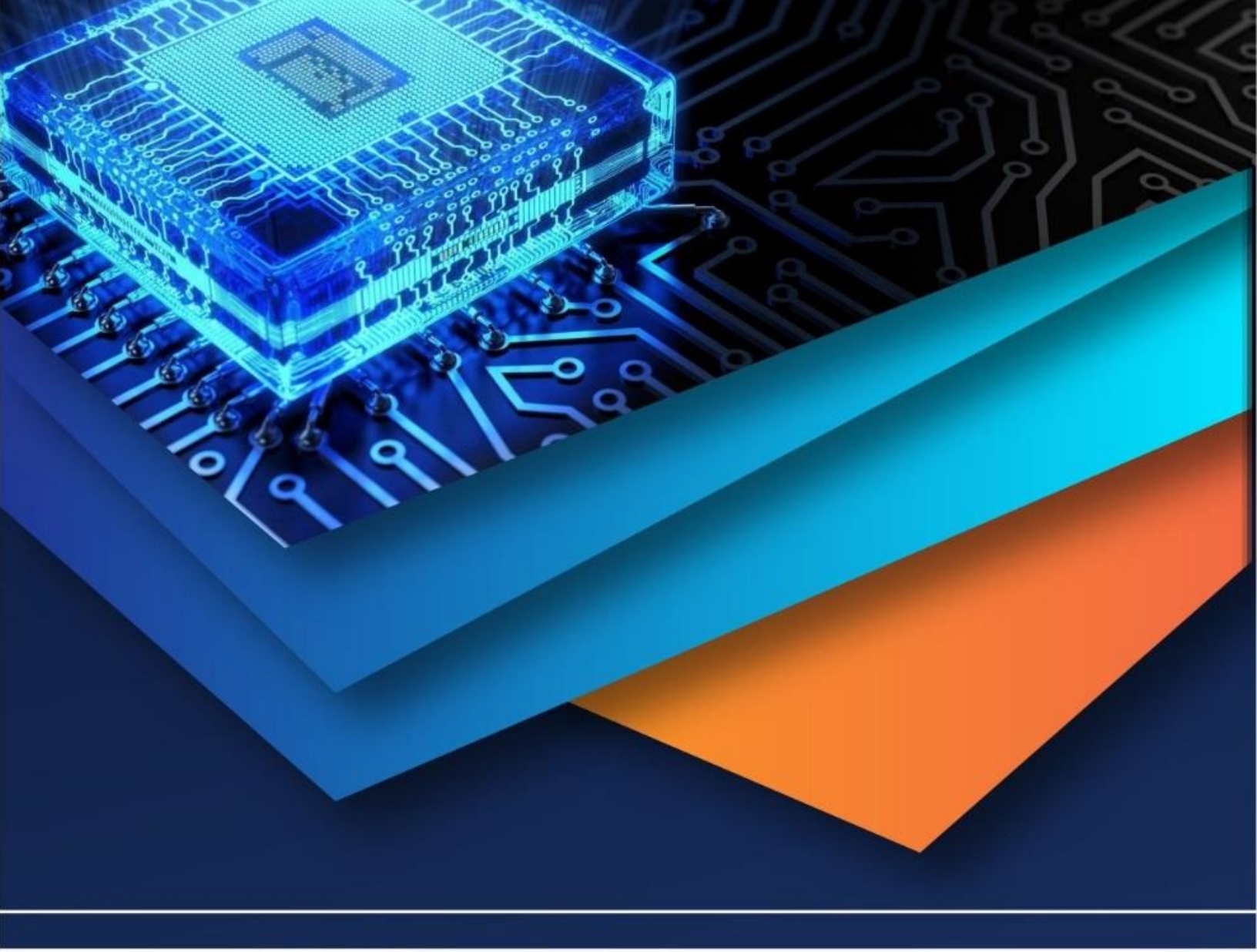
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