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Research Article

## Greening the School Environment: A Sustainable Design and Practice to Create Environmental Awareness and Consciousness Among the Learners

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### Abstract

What is school? It is not only the structural foundation but also a harmonious relationship between the school environment and the surrounding climate as well as the structure of the school building. This present study is focused on the effectiveness of Green school and Green building in achieving environmental sustainability consciousness among the learners, which is controlled by the principles of Environmental sustainability. The present paper focuses on approaching benefit of green school in respect to environmental sustainability. The researcher used the secondary data to carry out the present work. Reviewed information regarding green school which had studied in foreign countries has been used to understand the phenomena of green school effectiveness in environmental sustainability and developing the environmental consciousness among the learners. This paper depicts the positive impact of green school upon children's cognitive function and environmental consciousness.

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**KEYWORDS:** Green Schools, effectiveness of green schools, Green Building, Environmental sustainability, Environmental consciousness.

## INTRODUCTION

“Where the quality of life goes down for the environment, the quality of life goes down for humans.” (George Holland)

Early human being has always been determined by natural environment to fulfill their needs. “Early human beings were part of nature” (Kaplan 1992). At the starting phrase of our civilization nature is everything and dependent on the nature, nature is everything. During spend of time humans are more intelligence became a technological man in this journey man became started to take advantage of nature for socio-economic and cultural development as a result, we have to faced major serious problems i.e. ‘Thinning of the ozone layer, global warming, acid rain, and water, air, and soil pollution, resource depletion’ etc. but also wars, political and socio-economic instability. Destruction of biodiversity and ecological pressure leading to human concerns like- scarcity of drinking water, food, & fresh air, natural disasters and pandemics, and other health issues in every part of our world. These situations have indicated that this is the high time to change our behaviour towards nature, to cope up with this situation we have to move towards Sustainable Development.

The idea of SD (Sustainable Development) given by WCED which define as – “Development that meets the needs of the present without compromising the ability of future generations to meet their own needs”. After that ‘Tbilisi Declaration (1977)’, ‘International Education programme (IEEP)’, ‘Earth summit -1992’, ‘Agenda-21 and also Millennium development Goals, Decade of education for Sustainable Development (2005-2014)’ behind this agenda are education and sustainable development. Therefore, to emerged the thought of “Sustainable development” and environmental Development need an interdisciplinary culture through environment education from school level, i.e., “environmental and sustainability (IES) programme” which able to developed concept and habit to inbuild environment, consciousness about environment in sustainable manner i.e. “sustainability-oriented scientists, leaders, problem solvers, and decision makers” (as cited in Wie, Shume, et al.)

The study of “Green School” enriched by the concept of environmental sustainability that tells construct an environment by utilizing the opportunities of resource of school inside and outside both, “green school is not a one-time phenomenon but demands an on-going, continuous and synergistic effort of all stakeholders towards improving the environment of the school and its surroundings”. (Sharma, 2016). School must include the facilities to the students to make them cleanness and healthy habit i.e. (provision of nutritional supplement, maintaining hygiene – such as drinking water facilities, healthy food facilities, corporal punishment, free from used of drug etc.) as cited NCERT 2015., Sharma 2016., “Green schools” are also tells about construction as well as structure of the building, education building will be such that give the comfort to the student, building environment influence the student to learn, how to conserve energy?, how to save natural resource? And over all concept of sustainability of environment through

practical mode (cited in Spake and Aft., 2008). A Green School integrated, inculcate design of green curriculum into school subject in either theoretical and also practical. (Chan 2014). Not at all ‘Green schools also contribute to making communities more sustainable, explore solutions to environmental problems, and serve as models of responsible action’. (centre for eco literacy). School is the space for the learners, teachers and communities, design of schools influences on the student’s outcome. On the basis of reviewed studies, it is found that school environment effect on students’ achievement. (cited as Rudd, et.al., 2008). Dick (2007) emerged the green building as sustainable building, structure, design of the building help to meet the objectives of occupant health condition, resource management capacity building and also efficient environmental problem solver. (Cited in Ramli, et.al., 2012). School Environment can perform as “Silent curriculum” which have also positive and negative influence on learning. (Taylor and Enggass, 2009). Building environment has positive and negative influence on student’s health and learning ability (Kats., 2006) so the design of green school will able to provide the students productive teaching learning environment which helps to develop their physical, mental and psychosocial behaviour.

### Definition of Green Schools:

USGBC (US Green Building Council) defined the Green School as school building as a source of healthy environment as well as good learning environment to create sustainable life style among the students such as environment of saving energy, resource, money etc. Green schools are education building that operate in harmony with the natural environment, built to reduce energy cost and conserve natural resources, make use of recyclable materials and operate in a sustainable manner. (Spake& AFT, 2008). Gordon (2010) stated that ‘green schools is the physical result of the consensus process of planning, design and construction that considers a building performance 50-60 years’ life cycle, provided clean fresh air, a comfortable temperature range, abundant light and low distraction from unwanted noise while also maximizing the resource efficiency, minimizing pollution and teaching students the importance of innovation in the build environment.’ Centre for eco literacy define the Green schools as “contribute to making communities more sustainable, explore solutions to environmental problems and serve as models of responsible action” (as cited ReemOkasha, et. al, 2016). Green schools also considered as “Teaching tool for environment education” which can inculcate the skills among the students in the coming decades also help them to faced challenges of environment (Okasha, et.al, 2016). Green schools also focus on three areas of our domain – cognitive, moral and Behavioral, domain which includes skills of critical thinking, problem solving, and understanding between human variable and natural variable. (as cited Okasha, et.al, 2016). The green school has clean, healthy, protective and green surrounding. It also promotes physical and psychosocial health of the learners. i.e. provision of health and nutritional supplement, maintaining hygiene (drinking water, cleanness

classroom environment, playground, healthy practice in school etc.) and good practices such as free from drugs, corporal punishment, and also harassment. (as cited NCERT 2015, Sharma, 2016).

A green school is more than curriculum and programming, it is not only bricks wall but also create an aspirant mind which support for the global sustainability in every way. So the green schools' is the future of mind that can leads the world towards preparing healthier, cleaner, more sustainable for the future. (Heming, 2017).

## OBJECTIVES OF THE STUDY

1. To justify the Green school environment as a sustainable design to create environmental awareness of the students.
2. To justify the role of green school for creating environmental consciousness among the learners.

**Source of Data:** Secondary Data are used like previous research paper, internet source data used to analyze the phenomena.

### Sustainable design and practices in school environment:

#### Why it is sustainable design? - Justification:

1. **Green School as a teaching tool:** learning is not only the acquisition of knowledge rather it is the perfection of hand on experience of the real-world problem and well connected with the environment. Children were learning better through example and situational example is the better than the bookish example knowledge. Green school environment will able to provide the learners a real situational problem in front of them by which they can be understood the real environment problem also able to apply in the larger environment with their skills and knowledge. Walden (2015) define the school as "A school is not just a palace for instruction but a living venue for learning and play, as well as meeting place for users from the surrounding community"

2. **Create Environmental awareness & Consciousness:** "Environmental awareness"- refers to aware about natural environment and active ascertainment to assist environment from harmful activities. i.e., 'awareness about environmental degradation'. Environmental awareness is a concern towards environment or environmental problems in other word understanding the natural system within the human social system. knowledge about the environment, attitude, values and skills are equally important part to solve an environmental problem. Environmental problem like-**Resource conservation, Water conservation, Energy conservation, and Recycling of recyclable materials** etc. On the contrary, "Consciousness" means experience or awareness of environmental phenomena which include experiences and perception commonly associate with ours thought, feelings and actions. Sustainability Consciousness refers Knowledge(K)= knowingness (environmental, social, economic), A = Attitude (environmental, social, economic), B = Behavior (environmental, social, economic), (Olsson. 2014). Green Schools will be provided environmental awareness and consciousness knowledge and skills through the indoor learning activities. Students are able to learner about present

environment scenario, develop skills to protect the environment and utilize in the actions. Thus, solution can be determining in the primary stage which reduces the environment degradation what was happening in a larger scale.

3. **Use the building as a learning aids (BALA):** Green school building can be used as a learning aids of the children not only for the primary learners but also for the secondary or higher secondary learners. Building structure as well as environment of the school can be able to create the learners' awareness make them capable to act positively towards environmental sustainability. Colours, painting, symbols can be used in the building to create the learner's knowledge, understanding, interest about learning and also learners are able to learn quickly. For example- building walls, stair, corridors can be used for the meaningful painting or source of bookish knowledge such as alphabet, name of fruits, vegetables, poem, environmental awareness painting, few quotes of novel persons, picture etc. that will be help the learners developing knowledge and understanding in a broader term which will be applicable for the benefit of society.

4. **Green schools as a 3-Dimensional text book:** Green school model, environment as well as curriculum followed by the schools will able to develop the learners cognitive, affective and psychomotor domain which able to developed the learner's knowledge, understanding, and also problem-solving skills. The architect design and the surrounding environment will be work as a silent or hidden curriculum also a pedagogy for the little learners, according to Lippman (2010) "The building should be designed to make the curriculum hidden in architecture and operations art of the formal curriculum. School environments should be understood not only as places that are flexible and integrated but, most importantly, as places that encourage, support and allow the learners to acquire knowledge and develop practical skills while engaged with their social and physical environments." The learners are get the primary contact and exposure to the physical object that make them capable to develop experiential, situational, and problem-solving skills, not only those but also environmental and social knowledge. According to Nair (2014)- 'A learning building is where an active learner is supported within an active social and physical learning environment' (as cited Okasha, et. al, 2016).

5. **Designing the Green Curriculum:** green curriculum means developing the curriculum as much as connected to the local environment and social environment that not onlyLearner gets first-hand experience from the environment this experience may be expanded beyond the school and reach to community so the most important fact to developed curriculum and learning situation. This can be done by this following parameter and three domains of learning

#### 1. Learning about the environment:

Gathering knowledge and skill and understanding to protect our surrounding, so for the making green building process it is important to improve the curriculum on the basic of society needs so the learner have to know the what is the problem of his or her society? Educationist or school management committee and teacher are the pathfinder for the learner to provide the

knowledge and understanding that has helps the learner to improve their understanding. Thus they can relate the problem and find its suitable solution. This will help to develop learners' cognitive domain. Students learn environment which will help to develop the learner's knowledge such place, space and environment.

## 2. Learning through environment:

Learning through environment means process of learning by participating with the environment of the school environment curriculum. To understanding the natural 'environment', it is necessary to create a biodiverse environment. Inclusion of practical involvement to make the physical environment, it will help to understand the environment by the learner. This will be developing the learner's affective domain and psychomotor domains of learning

## 3. Learning for environment:

Learning for the environment depicts knowledge, skill, attitude towards environment in response to preserve and conservation policy regarding environment, social, cultural heritage or cultural environment. It is the response and responsibilities of the persons to look after nature. So, education is such that should be helpful for the learner to develop their knowledge, skill, attitude towards environment

## Environmental sustainability Consciousness among the learners' vs Green School:

Green Schools is the sprouting concept in the field of environmental sustainability. As we all know that a school is a miniature of a society so we can expect the broader achievement in the sense of environmental awareness and preserving the environment. Different foreign studies reflect on the effectiveness of green school in achieving the environmental ethos among the students, and also benefits on the environment. Kats (2006) reported the amenities of; green schools' and found 33% energy saving in school whether normal school have found low level energy saving but the building cost is 2% high than the traditional schools. 'U.S. National Research council' reported that design of green school also capable to save water use which was 32%, Green schools have guide line some criteria in the effectiveness of the schools such as – 'Indoor air quality, thermal comfort, Day lighting, Water efficiency, and energy efficiency' from the evidence of green school class room environment found academic progress among the children (as cited in okasha, 2016). Quality of air also a factor in children health from a study it is found 38.5% reduction of asthma among the children (Peterson et al.,2010) and other studies reflect on daylighting in the classroom and the result showed that performance of students increased 20% (Gelfand and feed, 2010, Okasha et al., 2016).

Other studies reflected on green schools in Suriname by the SUWAMA foundation change in children's behavior towards environment, study reflect on the significant positive change of children's behaviour towards environment during the monitoring change especially observed in the case of endanger species, recycling activities, energy and water saving.

SUWAMA foundation taking some school after monitoring they implement as green school and the result found improved from their previous condition, data were as follows- clean school yards 17%, clean and neat classrooms 10%, biodiversity improvement 39%, school gardens 4%, recycling 48% improvement, energy saving 69%, and the installation of environmental bridges 89% (as cited in Somwaru, 2016). A study also conducted in Israeli to show the effect of green schools on students' environmental attitude and behavior on the basic of EE (environmental education) programme taught in the green schools and persistent green schools and the study reflect that EE programme had positive effect on development of environmental attitude among the students of Israel. The study also reflects on that food habit of the pupil's family also reflect on the environmental attitude and the result found stronger environmental attitude for the pupils who were having the vegetarian, also higher environmental attitude ( $\beta = .139, p < .001$ ) found for the case of that pupils who were spending time with the nature maximum time with their parents. (as cited in Ofir Rubin, 2016). This study also reflects on the effectiveness of eco-schools and non-eco schools to determine the environmental knowledge and awareness, pro-environmental attitude, and pro-environmental action among the learners. In comparing environmental awareness between Eco- Schools (ES) and Non- Eco- Schools (NES) the difference occurs from 6% to 19% in case of some measuring items some case it varies 10% to 19% in some case of items. Statistically slightly difference exist between Eco-school (where  $M = 8.2$   $SD = 2.4$ ) and Non- Eco school (where  $M = 7.7$ ,  $SD = 2.7$ ) statistical result shown there is slight difference in environmental knowledge between eco-school and non-eco-school but this doesn't mean the true difference and researcher deny his directional hypothesis. In case of attitude the researcher can't not found ES, students have higher attitude than NES students. In the case of pro-environmental action there is slightly difference between the two groups but the overall result show that the pro-environmental action is higher among the ES students compare to NES students.

## CONCLUSION

Learning through environment as an active learning source and reflect as a parallel curriculum, consequently process of leaning should have positive effect on shaping environment and future generation. The recommendation of green schools encourages the learners towards environmental responsive citizen and make the human-nature relationship. The finding of the previous study reflects that green school's students exposed stronger attitude towards environment. This study will help to learner, teachers, policy makers to understand the scenario of green school. This paper also recommended to the stake holders, Govt., non-govt. organization to make the school as a green school for shaping the future learning environment. As the present condition of the learning environment don't help the leaners ethos and moral and psycho-social development. So, the more enthusiasm about green school will be help us for future learning environment.

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