

Experiential Learning in innovation for sustainable education: An Analysis of Teaching-Learning Activities

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Abstract:

The immediate challenge of sustainable environment requires more Teaching-Learning pedagogy catalyzing different types of learning. The purpose of the present paper is to examine green school practices as source for experiential learning in school. Green school practices, policies, initiatives and integration of green school practices/activities in school curriculum are analyzed. The outcome of study discloses that environmental education is important subject matter in science and social science. The environmental related facilities/resources/activities are now emphasized as a significant tool for Teaching-Learning. To combat climate change and create awareness on environment among students, teachers require orientation programme for integration of Green School Practices/activities/ resources in school curriculum.

Keywords:

Experiential Learning, Innovation, Sustainable development, Teaching-Learning Activities.

Introduction:

The school as an institution must have willingness and ability to pursue eco friendly programme and initiative. It is a platform created where educational institution are recognized for their green initiatives and trap an opportunities to improve students' academic performance through green initiatives. Schools are able to collaborate with communities, organization, agency to support their green programme initiatives. School must utilize resources available in their surroundings, expertise, and suits by involving parents, and double at large, in initiating, maintaining and implementing their green school practices.

Schools have the capacities and willingness to pursue green school practices and initiatives. Green school practices are school-lead rather than teacher-lead. It can be a fact that school established committee to be monitored, mentored, co-ordinate specific programme activities under support and supervision of principal. It is considered to be good arrangement and good practice because it prevent the failure of programme when teacher leave/transfer from

school and it also stimulate participation of all teachers in the school and promote the sense of collective ownership of programme and initiatives.

Environmental related content taught in Environmental Science (EVS) as subject from grade 1 to 5 and integrated in Science, Social Science from grade 6-10 and at grade 11-12 Biology, Agriculture, Geography, and Physical and Health Education(PHE). It reveals that green school practices initiative has potential to benefit to many subject at curriculum and benefited at primary, secondary and senior school level. School can use environmental related concepts, topics, content from these subjects as a part of their guide when selecting the type of green programme and activities and can be integrated with other subjects like Mathematics, English and Art. It will result in enhancing coherence between curriculum/lesson and green programme. “Green Literacy” like programme involves orientation of school teachers and develops capacity of integration in school curriculum and extra curriculum into the programme must also be part of green –school initiation.

The aim of green school practice is to enhance students to participate and to create awareness about environmental issues through class-room studies integrated green school practices and transfer knowledge into positive environmental action in school as well as wider society. In our nation attention to environmental related issues has always been taken into consideration. The green school programme is initiated with a view to address the environmental issues in school. To tackle environmental crisis, sustainable development education has emerged as a catalyst. Sustainable leadership and sustainable school both begin with a clear moral purpose. This moral purpose brings into line the need to preserve, protect and support the environment, as a living system from the damage caused by modern living. Sustainable practicing school combines deep moral purpose with a central focus on learning. Sustainable schools put learning first but locate this learning within a sustainable development framework. It means preparing young mind for a lifetime sustainable living, through their teaching, their fabrics and through the modality of sustainable practice. A practicing school culture of the sustainability is one in which students; staff and parents hold shared values and strong believe about significance of teaching action for fair, healthier, more environmentally sustainable society. Three vision and approach for sustainable school but the three basic and more important indicator that may provide a better performance for green school.

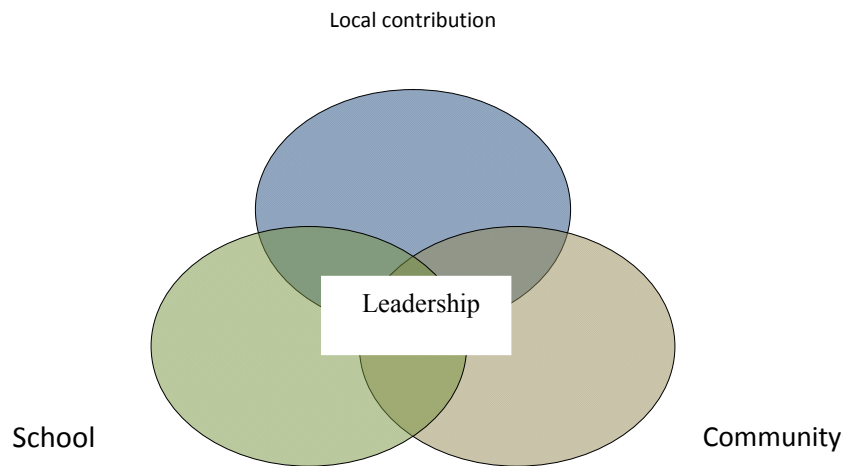


Fig 1: Sustainable schools

Methodology:

Objectives:

The present situation and practices in school regarding environmental education, eco-friendly practices, policies and initiatives and use of green school practices/activities as teaching learning resources.

Tool:

To collect data about environmental education, green practices/activities used in teaching-learning process, initiative and its implementation in schools interview, observation methodology and secondary sources are used. Narrative data are washed, transcribed, coded and classified according to the theme and research questions.

Interview is held at respective green school practicing school. The interview is conducted and data is gathered on the basis of seven questions aimed at getting information about amalgamation of green school practices/activities in school curriculum, green school practices/activities that the school engage in as a part of a curriculum promotion of environmental awareness and challenges faced in implementation. Five questions are framed for getting information about policies, initiative programme to promote environmental awareness, greening and tree plantation. In school, challenges faced, possible role they may play in the implementation of green school initiation were discussed. Interview is recorded for the accuracy and the duration of interview is from 30 to 40 minutes.

After interview, guided tour was conducted. Researcher took pictures of observe activities, facilities and raised questions. Tour of observation is aimed at finding out the type of green facilities, initiatives and activities implemented, collecting evidences about utility of teaching-learning materials. Discussion is held during tour and is recorded for accuracy and duration of tour is from 20-30 mins.

Secondary data source was school curriculum and national curriculum frame work (2005) about environmental education in school curriculum.

Analysis of data:

Data collected by using interview, observation and questionnaire is washed, categorized according to the theme and research questions. A coding method is used to organize the interview data into research objective and questions. The data from interview and observation are compared and contrast. The illuminated quotation from interview related to research objective and question are selected.

Result:

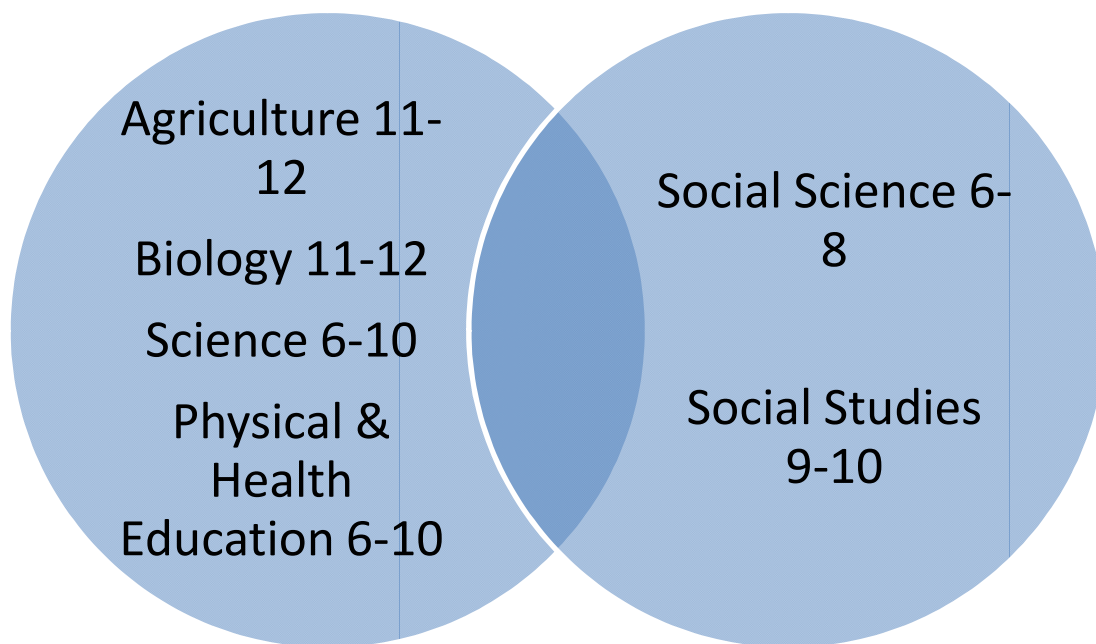


Fig 2: Subject Areas linked to environmental solution in school (Interview Based)

Environmental education is taught in Environmental Science (EVS) as subject in grade 1 to 5 as shown in fig 2. Environmental studies are integrated in Science and Social Sciences. Integration of approaches makes students to see society and nature as whole. Integration approach is used grade 5 to 12, in Science. In science, students manipulate and correlate natural environment and value of frame work of the sustainable use of matter, process and energy in non-living and living things, and in social students the main learning area of understanding is environmental issues.

Green practices/initiation school:

Sl.No	Green School Practices	Schools						
		1	2	3	4	5	6	7
		U	U	SU	R	R	R	SU
1	Plantation of indigenous plant	G						
2	Plantation of semi-arid plant			G				
4	Tree plantation	G	G	G	G	M	P	P
5	Hand wash basins	•						

6	Ornamental plants/garden	•		•			•	
7	Waste segregation facilities	M	M	G		G		
8	School garden area		•					
9	Functioning garden – during visit			•	•	•	•	•
10	Nursery					G		
11	Orchard			P				G
12	Rain water harvesting	G	G	G	G	G	G	G
13	Observation of geo plantation day	G				M		
14	Cleaning campaigns	G			G			G
15	Top rankers	•			•			•
16	Water conservation committee/policy	•			•		•	
17	Water leakage rankers		•			•		
18	Switching off light when not in use policy					•		
19	Energy efficient bulbs					•		
20	Monthly electricity bill display	•		•		•		
21	Recycling	G	G	G	G	•	•	•

• Present

*U – Urban

G- Good

Su -Sub Urban

M- Moderate

R- Rural

P-Poor

On the basis of interview, observation and field visits, schools initiated various types of green initiative (fig-3) such as green belt development, energy/water conservation and waste management.

School no 2,4 and 6 have more, well maintained green facilities. In some schools green facilities are neglected and not sufficient and poorly maintained. School garden area is present in all schools but only one school has properly functional school garden during school visit and

none of the urban school has properly maintained school garden. School instigates positive interest in conservation of resources such as water and energy. Few schools collaborated with other agencies for green initiatives. Such energy conservation, tree plantation, waste segregation and cleaning campaigns. The following challenges for green school initiatives are mentioned by the teachers

1. Lack of budget for green practices.
2. Lack of commitment from teachers.
3. Maintenance of school garden during vacation.
4. Erratic rainfall and unsuitable land.
5. Availability of space.
6. Difficult to get manure for school garden.
7. Security of garden.

Result of the study reveals that all schools have proper fencing and well connected with running water but great problem of water during summer. Sometime no water for days, water is rationed by regularity authority. One study school has rainwater harvesting system and recycling of water and well defined water policy. All schools in the study have institutional worker who are responsible for school environmental facilities such as watering plants and cleaning.

Table-2:

Sl.No	Facilities	No	%
1	Fencing	7	100
2	Security concern	4	100
3	Institutional worker	7	100
4	Connected to water supply	7	100
5	Water concern	7	100
6	Has electricity	7	100
7	Water conservation initiative	4	100
8	Energy conservation initiative	4	100
9	Rain water harvesting	4	100

Integration of green practices/activities in school curriculum:

The green practices/activities such as nursery garden, herbal garden, orchards are present integrated by the committed team of teachers and used as Teaching – Learning tool. The major challenge is maintenance of such facilities and effective utilization of green practices/activities in all core subject curriculums.

SWOT Analysis: (Strength, Weakness, Opportunities and Threats)

On the basis of collection of data from questionnaire, interview, observation and field survey and secondary data source categorized resource into internal strength and weakness and external opportunities and threat and presented in table 3:

Table 3: SWOT Analysis

Sl.No	Strength(+)
1	Integration of environmental education to school curriculum
2	Establishing collaboration with various agencies
3	Some school join excellent green school practices
4	More designated garden space
5	Most schools are fenced
6	Most school have institutional multitasking staff for maintenance during summer
7	Teachers are interested in resources conservation
8	Most of the school is connected to water supply and electricity.

Sl. No	Weakness (-)
1	Most gardens are not properly functional
2	School garden not sufficiently limited to subject other than science

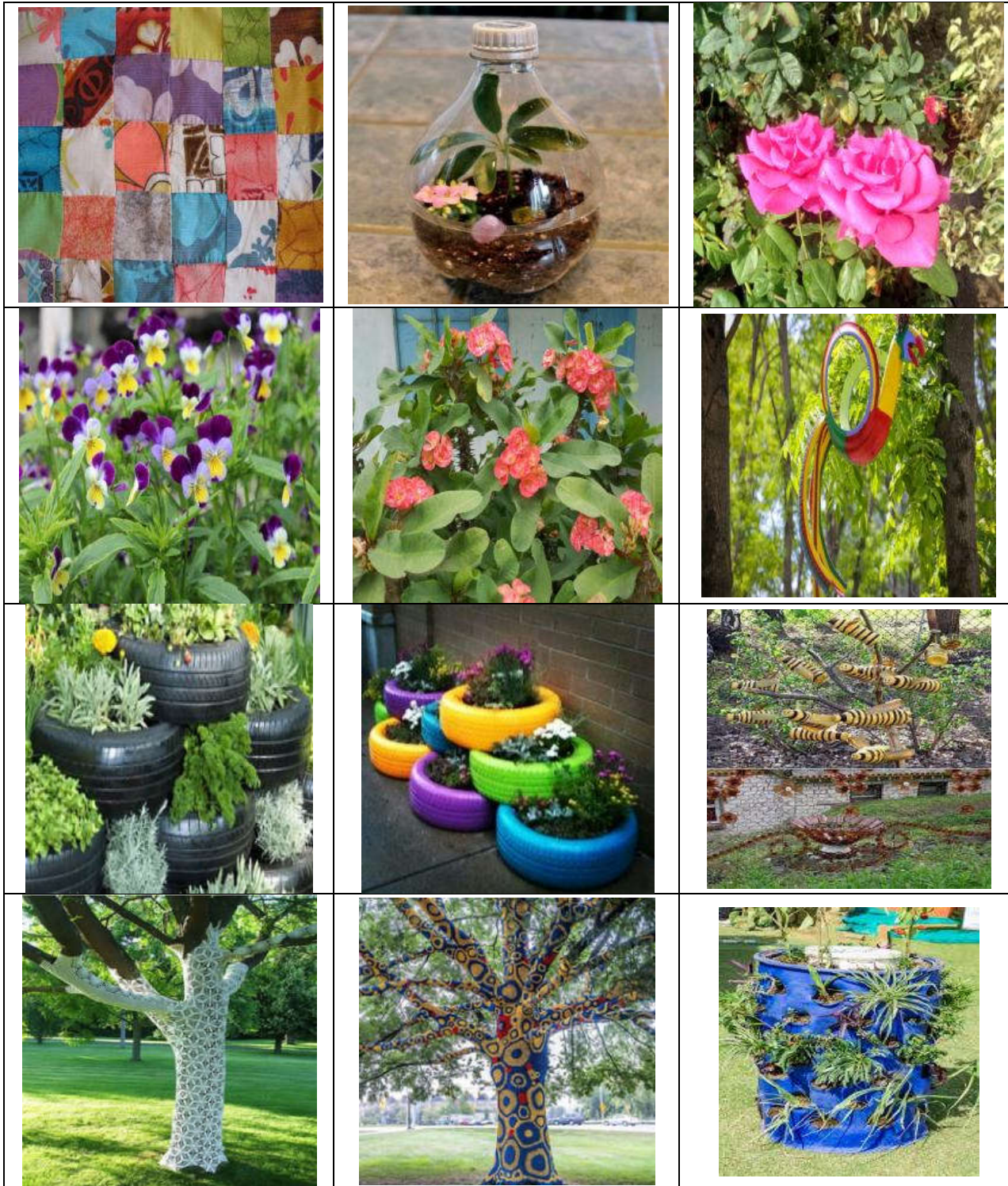
3	Environmental related initiatives are not institutional, lead but teacher lead
4	Lack of adequate initiation to maintain green belt
5	Present green practices/activities are not promoted as teaching-learning tool
6	Lack of willingness among teachers to propagate green practices programme

Sl. No	Opportunities (+)
1	Existing policies/interest in various schools
2	Green school/programme initiated by centre for environment, New Delhi
3	Government provide seedlings to school
4	Biodiversity strategies/retention plan
5	Paternal between school and other various arenas.

Sl. No	Threats (-)
1	No adequate platform to recognizes green school
2	Lack of incentives for school who initiated successful programme
3	Lack of collaboration among learners
4	Erratic rainfall/summer
5	Water availability
6	Unsuitable land (salty, rough, poor)

Table 4:
Facilities observed in some schools



Conclusion:

1. Environmental education is very important subject matter and applied in various school curriculum and integrated with science and social science.
2. Green School concept is not largely known.
3. The integration of the green school practices/ activities is not considered as most important teaching tool.
4. School initiated green school practices but mostly neglected, poorly maintenance due to lack of motivation and interest.
5. Integration of green school practices to limited to science currently in limited classes.
6. The few school initiated green school practices and collaborated with various agencies.
7. Teacher's commitment for green school practices initiation, nourishment, maintenance and integration in school students and teachers also.
8. The major challenge is continuous water supply to maintain school garden.

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